

## DOCUMENT RESUME

ED 381 982

EC 303 930

AUTHOR McBroom, Lynn W.; And Others  
TITLE The Transition to College for Students with Visual Impairments. Technical Report.  
INSTITUTION Mississippi State Univ., Mississippi State. Rehabilitation Research and Training Center on Blindness and Low Vision.  
SPONS AGENCY National Inst. on Disability and Rehabilitation Research (ED/OSERS), Washington, DC.  
PUB DATE Apr 94  
CONTRACT H133B10003  
NOTE 161p.  
AVAILABLE FROM Mississippi State University, Rehabilitation Research and Training Center on Blindness and Low Vision, P.O. Drawer 6189, Mississippi State, MS 39762 (\$20).  
PUB TYPE Guides - Non-Classroom Use (055) -- Reports - Research/Technical (143)  
EDRS PRICE MF01/PC07 Plus Postage.  
DESCRIPTORS Accessibility (for Disabled); \*Administrator Attitudes; Ancillary School Services; Blindness; College Bound Students; \*College Students; Higher Education; Partial Vision; \*Student Adjustment; \*Student Attitudes; \*Student Personnel Services; Transitional Programs; \*Visual Impairments

## ABSTRACT

This monograph considers aspects of the visually impaired student's transition from high school to college and his successful adjustment at college, reports on a forum of experts addressing these issues, and summarizes results of surveys of successful students and college administrators. The first chapter is on making plans to attend college and covers such suggestions as beginning early, preparing both socially and academically, and dealing with admissions testing. Classroom accommodations are covered in the second chapter, including testing accommodations, computers, science laboratories, and transition programs and resources. The discussion of the research forum identifies information helpful to know before college, guidelines of rehabilitation agencies, and research suggestions. The report of the survey focuses on development of two survey instruments to identify, from the points of view of 102 successful students and 66 administrators, the skills, knowledge, and needed steps required of students with visual impairments. Highlights of the student survey address educational environments, college demographics, reading methods, work history, extracurricular activities, mobility, services and equipment, college preparation, and problems while attending college. Highlights of the college administrator survey cover time spent on special needs, admission standards, effect of the Americans with Disabilities Act, services provided by colleges, students' use of services, and source of payment for services. A qualitative analysis of survey responses and a summary complete the monograph. (Contains 80 references.) (DB)

# The Transition to College for Students with Visual Impairments

---

## Technical Report



**McBroom, Sikka, and Jones**

PERMISSION TO REPRODUCE THIS  
MATERIAL HAS BEEN GRANTED BY

*Lynn W. McBroom*

BEST COPY AVAILABLE

**The Transition to College for Students  
with Visual Impairments  
Technical Report**

**Lynn W. McBroom, Ph.D.  
Anjoo Sikka, Ph.D.  
Leda Bartlett Jones, M.A.**

**April, 1994**

**Mississippi State University  
Rehabilitation Research and Training Center  
on Blindness and Low Vision  
P.O. Drawer 6189, Mississippi State, MS 39762**

Copyright © 1994  
All Rights Reserved

Mississippi State University  
Rehabilitation Research and Training Center  
on Blindness and Low Vision  
P.O. Drawer 6189, Mississippi State, MS 39762

Development of this document was supported in part by the Rehabilitation Research and Training Center on Blindness and Low Vision Grant H133B10003 from the National Institute on Disability and Rehabilitation Research, Department of Education, Washington, DC. Opinions expressed in this document are not necessarily those of the granting agency.

Mississippi State University does not discriminate on the basis of race, color, religion, sex, age, national origin, veterans status, or disability.



## Table of Contents

|                                                      |    |
|------------------------------------------------------|----|
| Introduction .....                                   | 1  |
| Making Plans to Attend College .....                 | 3  |
| Begin Early .....                                    | 3  |
| Academic Preparation .....                           | 4  |
| Social Preparation .....                             | 5  |
| Selecting an Area of Study .....                     | 6  |
| Educational Financing .....                          | 7  |
| Accommodating Students with Visual Impairments ..... | 7  |
| Timelines .....                                      | 10 |
| Legal Requirements .....                             | 15 |
| Admissions Testing .....                             | 16 |
| Classroom Accommodations .....                       | 19 |
| Problems in the Classroom and Beyond .....           | 19 |
| Disabled Student Services .....                      | 19 |
| Overcoming Problems in the Classroom .....           | 20 |
| Testing Accommodations .....                         | 24 |
| Computers .....                                      | 36 |
| Science Laboratories .....                           | 27 |
| Transition Programs .....                            | 28 |
| Transition Resources .....                           | 30 |
| Research Learning Forum .....                        | 33 |
| Introduction .....                                   | 33 |
| Information that is Helpful to Know Before           |    |
| Attending College .....                              | 33 |
| Appropriate academic preparation .....               | 33 |
| Social maturity .....                                | 33 |
| Self-knowledge .....                                 | 33 |
| Independent living skills .....                      | 34 |
| Adequate resources .....                             | 34 |
| Knowledge of entrance requirements .....             | 34 |
| Guidelines and/or Qualifications Required by         |    |
| Rehabilitation Agencies .....                        | 34 |
| Important Areas to Include in the Research .....     | 35 |
| Demographics .....                                   | 35 |
| Educational background .....                         | 36 |
| Family and personal characteristics .....            | 36 |
| Relationship to agencies .....                       | 36 |
| College activities .....                             | 36 |
| Preparation for Attending College .....              | 37 |

|                                                            |    |
|------------------------------------------------------------|----|
| Academic preparation .....                                 | 37 |
| Financial preparation .....                                | 37 |
| Social preparation .....                                   | 37 |
| Entry into college .....                                   | 37 |
| Epilogue .....                                             | 38 |
| Methodology .....                                          | 39 |
| Questions .....                                            | 39 |
| Procedures .....                                           | 39 |
| Selection of Upperclassmen to Represent                    |    |
| "Successful" Students .....                                | 41 |
| Anticipated Results and Applications .....                 | 41 |
| Results of Student Survey .....                            | 43 |
| Demographics .....                                         | 43 |
| Educational Environments .....                             | 43 |
| College Demographics .....                                 | 45 |
| Reading Methods .....                                      | 46 |
| Work History .....                                         | 46 |
| Extracurricular Activities .....                           | 47 |
| Mobility .....                                             | 47 |
| Future Plans .....                                         | 49 |
| Services and Equipment .....                               | 49 |
| Received Help from Others .....                            | 53 |
| College Preparation .....                                  | 53 |
| Problems While Attending College .....                     | 57 |
| Reading Medium Correlated with Problem Areas .....         | 62 |
| Computer Usage Correlated with Problem Areas .....         | 64 |
| High School Grades Correlated with Problem Areas .....     | 64 |
| College Grades Correlated with Problem Areas .....         | 65 |
| Work History Correlated with Problem Areas .....           | 65 |
| Participation in Extracurricular Activities                |    |
| Correlated with Problem Areas .....                        | 65 |
| Results of Administrative Survey .....                     | 67 |
| Time Spent on Special Needs .....                          | 67 |
| Admission Standards .....                                  | 67 |
| Effect of the Americans with Disabilities Act .....        | 68 |
| Services Provided by Colleges, Now and in the Future ..... | 69 |
| Students' Use of Services Provided by Colleges             |    |
| During the Last Year .....                                 | 73 |
| Source of Payment for Services Provided by Colleges .....  | 73 |
| Additional Services .....                                  | 73 |

|                                                             |    |
|-------------------------------------------------------------|----|
| Qualitative Analysis .....                                  | 79 |
| Introduction .....                                          | 79 |
| What Do You Know Now About College that You Wish You        |    |
| Had Known when You Were a Freshman? .....                   | 79 |
| Communicate with teachers .....                             | 79 |
| Access to alternate media and adaptations .....             | 79 |
| Study habits .....                                          | 79 |
| Hard work or difficulty .....                               | 81 |
| Assertiveness and self-advocacy .....                       | 81 |
| Responsibility .....                                        | 81 |
| Time management and organization .....                      | 81 |
| Extracurricular activities .....                            | 81 |
| Support services .....                                      | 81 |
| Knowledge of the "system" .....                             | 81 |
| Academic advice and scheduling .....                        | 81 |
| Selecting a college or major area of study .....            | 82 |
| Financial assistance and cost .....                         | 82 |
| Transportation and O&M .....                                | 82 |
| Social interactions .....                                   | 82 |
| Test-taking and other skills .....                          | 82 |
| General information .....                                   | 82 |
| What Advice Would You Give a High School Student            |    |
| with a Visual Impairment Who Wanted to Go to College? ..... | 82 |
| High school preparation .....                               | 82 |
| College options and choices .....                           | 84 |
| Transportation and O&M .....                                | 84 |
| Financial assistance .....                                  | 84 |
| Contact or talk to disabled student services .....          | 84 |
| Contact or talk to vocational rehabilitation                |    |
| and other disability agencies .....                         | 84 |
| Decide major area of study .....                            | 84 |
| Contact or talk to peers .....                              | 84 |
| Contact or talk to teachers .....                           | 84 |
| Alternative media .....                                     | 85 |
| Computers and technology .....                              | 85 |
| Assertiveness, advocacy, and independence .....             | 85 |
| Course load .....                                           | 85 |
| Study habits and time management .....                      | 85 |
| Extracurricular activities and social networks .....        | 85 |
| Disability-related comments .....                           | 85 |
| Motivational comments .....                                 | 85 |
| General comments .....                                      | 85 |
| Summary .....                                               | 86 |

|                                                                                                                                     |     |
|-------------------------------------------------------------------------------------------------------------------------------------|-----|
| Summary .....                                                                                                                       | 87  |
| What Do Students with Visual Impairments Need to<br>Know to Attend College? .....                                                   | 87  |
| What are the Specific Steps that Students with<br>Visual Impairments Need to Take in Order to<br>Successfully Attend College? ..... | 89  |
| Do Skills, Knowledge, and Steps Differ from the<br>Perspective of Students Versus Program<br>Administrators? .....                  | 90  |
| References .....                                                                                                                    | 93  |
| Appendices .....                                                                                                                    | 101 |
| Appendix A: Student Survey .....                                                                                                    | 101 |
| Appendix B: Administrative Survey .....                                                                                             | 111 |
| Appendix C: Introductory Letter to Students .....                                                                                   | 115 |
| Appendix D: What Do You Know Now About College<br>that You Wish You Had<br>Known when You Were a Freshman? .....                    | 119 |
| Appendix E: What Advice Would You Give a High<br>School Student with a Visual Impairment Who<br>Wanted to Go to College? .....      | 133 |

# List of Figures

|                                            |    |
|--------------------------------------------|----|
| Figure 1. Educational Environments .....   | 44 |
| Figure 2. Extracurricular Activities ..... | 48 |
| Figure 3. Services and Equipment .....     | 50 |
| Figure 4. Received Help from Others .....  | 54 |
| Figure 5. College Preparation .....        | 55 |
| Figure 6. Problems While at College .....  | 60 |

# List of Tables

|                                                                                                                                 |    |
|---------------------------------------------------------------------------------------------------------------------------------|----|
| Table 1. Services Used by Students in College .....                                                                             | 52 |
| Table 2. Perceived Importance by Students of<br>Selected Factors in Preparing for College .....                                 | 58 |
| Table 3. Problems Encountered by Students in College .....                                                                      | 63 |
| Table 4. Services Provided by Colleges, Use of<br>Services Last Year, and Interest in<br>Providing Services in the Future ..... | 70 |
| Table 5. Sources of Payment for Services<br>Provided by Colleges .....                                                          | 74 |
| Table 6. "What do you know now about college that<br>you wish you had known when you<br>were a freshman?" .....                 | 80 |
| Table 7. "What advice would you give a high<br>school student with a visual impairment<br>who wanted to go to college?" .....   | 83 |

## Introduction

Students who are visually impaired as well as those who are sighted share similar concerns when attending college for the first time. They must register for class, find their way around a strange campus, meet new people (and hopefully, make a few new friends), survive dormitory life and cafeteria food, and adequately prepare to pass their courses. Students who are visually impaired share all these concerns and a few more which are unique to their particular situation. How will they arrange to complete reading assignments (find and hire readers, locate adaptive equipment for their needs, find enough time to complete all those assignments)? How will they find their way around campus when everyone else is just as lost as they are that first week? How will they deal with these and other issues that someone else (high school teachers, parents) may have been doing for them all of their lives? What support systems will they have when they leave home (maybe for the first time)?

Typically, students with disabilities are not adequately prepared for a college education, do not have access to resources and services enhancing their education programs, and tend to be less socially involved than their nondisabled peers (National Council on Disability, 1989). Students with disabilities experience more difficulties while in college and are at the greatest risk of dropping out of a postsecondary school before completing their program (Brown, 1990; Butler-Nalin, Marder, & Shaver, 1989). In spite of these challenges, students with visual impairments are attending colleges in significant numbers.

Students with visual impairments are enrolling in colleges at rates comparable to the nondisabled population. Fifty-six percent of students without disabilities attended a postsecondary institution in the previous year after exiting from high school. Even more students with visual impairments attended a college during the same time period (68%) (Marder & D'Amico, 1992).

Obtaining a college education is important. Many blue collar and white collar jobs now require advanced technical training that is only available through a college training program. College students obtain skills needed to overcome barriers to employment. They receive support services such as career counseling or job placement that help direct their educational programs and job search efforts towards work that matches their abilities. A college education also expands their opportunities for social interactions (Marder & D'Amico, 1992).

A clear-cut economic benefit is less apparent because a college education does not have the same economic payoff for persons who are visually impaired and specifically, for women who are visually impaired. Kirchner, McBroom, Nelson, and Graves' (1992) research showed that a college education provided less of an economic payoff when compared to sighted respondents. When the results were separated by gender, the disparities were even more striking.

In spite of this research finding, the staff of the *AER Report* (Staff, 1993) believe that people with visual impairments have a better chance for future competitive employment than other disability groups who have higher high school



drop-out rates and lower initial rates of enrollment in college. In 1991, 8.8% of all first-time, full-time freshmen students reported having a disability. This is a significant increase from 2.6% in 1978. The most frequently reported disabilities were visual and learning disabilities (about 25% of the freshmen students with disabilities reported each type) (HEATH, 1993a).

In order to encourage more students with visual impairments to enter college programs and to remain in those programs until graduation, research is needed which identifies skills, knowledge, and steps necessary for students with visual impairments to enter college and to complete course work and training. This study was designed to identify previous research and writings about the transition to college. Information was collected from students with visual impairments who were enrolled in college and who had "survived" their freshmen year. These students offered their insights and thoughts about succeeding in the college environment. Additional data were gathered from college administrators about their programs for students with visual impairments. Taken together, this information will help high school students, parents, high school counselors, vocational rehabilitation counselors, and rehabilitation teachers plan for a college education.

In this monograph, "college" refers to all two-year colleges, four-year colleges, and four-year universities. Postsecondary vocational schools are not included in this group. The use of "college" when discussing postsecondary education of students with visual impairments is appropriate because this is where most of these students are enrolled. While 66% of students with visual impairments attended a two- or four-year college or university, only 3% attended a vocational school (Marder & D'Amico, 1992). Because of this demographic fact and because "postsecondary education" is such an unwieldy phrase, "college" will be used in the remainder of this report.

## **Making Plans to Attend College**

High school students with visual impairments who are considering post high school options have many of the same decisions to make as their nondisabled peers. They must decide if they want or need to attend college. They must be academically and socially prepared to compete in a college environment. They must select a college which matches their needs and accepts them into its program. They must be able to pay for a college education either through personal funds or by making other financial arrangements. Finally, students with visual impairments must obtain needed accommodations to compensate for their visual impairments.

### **Begin Early**

With all this in mind, planning for college has to begin early for students with visual impairments. This student does not have the luxury of waiting until the last minute to make up his or her mind about the future. For example, the student must first be admitted to the program before registering for any classes. Gaining admission to a program may require certain preparatory courses or minimum scores on standardized admissions tests. Admissions tests are available in alternate media, but they must be requested in advance. Students with disabilities often have concerns about taking college admissions tests including what to do if scores are comparably lower than the norm group and how to arrange for standardized tests in alternate media. In general, accommodations for visual impairments can be made, but arrangements usually take a while to accomplish. Guidance counselors should be prepared to assist students in making these arrangements in advance of the regular enrollment period (Davie, 1990; HEATH, 1989a; HEATH, 1989c; Jarow et al., 1991).

Planning for college does not occur in a vacuum. It has to involve all the relevant people including students, parents, teachers, guidance counselors, vocational rehabilitation counselors, college administrators, and college teachers. Each person has a key role to play in the decision-making process. While ultimately it is the student who must make the decisions and live with the consequences, the other players have significant input in the process. Nevertheless, it is critical that students make the choice to attend college rather than parents, teachers, or other people (HEATH, no date;a; Yuditsky, 1991).

In testimony to the National Council on Disability (1989), expert witnesses declared that transition planning must begin early in the student's high school program; be coordinated between the high school, adult services agencies, and college; and focus directly on adult life outcomes. The Council concluded that parental participation during high school facilitates the successful transition of students with disabilities from school to adult life.

Even though the state educational system is responsible for students with visual impairments at the high school level, the transition process can be



smoothed by contacting the vocational rehabilitation agency before high school graduation (Davie, 1990; HEATH, no date:a). This allows time for agency personnel to become familiar with the student and to begin anticipating the student's needs and the services that can be provided after transition into the adult rehabilitation agency.

### **Academic Preparation**

Anyone planning to attend college, including students with visual impairments, should have the appropriate academic background. If they do not possess skills and knowledge, no amount of accommodations will make up for the loss of academic training. Academic ability rather than physical disability should be the first priority in selecting a college. Students should be encouraged to treat their disability as just one part of themselves. When making decisions about schools and jobs, the disability should be considered, but it should not and cannot be the only factor in the decision-making process (Brill, 1987; Council of Chief State School Officers Resource Center on Educational Equity, no date; Jarrow et al., 1991; National Federation of the Blind, 1981).

Students wishing to pursue college opportunities should consult with a guidance counselor about their high school curricula. Students with visual impairments must know at the beginning of high school that they will have completed the necessary coursework for entry into college upon graduation from high school (Davie, 1990). They must also consider if they are taking the same types of courses as are taken by other students preparing for college. For example, if students with disabilities were confined to special classes, were the same experiences and information conveyed to both groups?

A high school counselor can assist students who are visually impaired with the following activities: (1) Realistically assess a student for college potential, (2) provide information about college programs offering special services for students with disabilities and help students apply for these services, (3) prepare students for college admission interviews, (4) help students develop interpersonal skills, (5) provide career advisement, and (6) educate students about their visual impairments (Mangrum & Strichart, 1984). Some students may want to complete vocational assessment inventories or psychological tests which can either expand or narrow their occupational choices (Davie, 1990; HEATH, no date:a).

Mangrum and Strichart (1984) advised high school teachers to enroll students in college preparatory courses, provide content area instruction by specialists, and provide assignments in a format similar to college class assignments. Students should also be taught how to read textbooks effectively, how to read graphs, how to study, how to organize their study time and space, how to function independently, how to use auxiliary aids, and how to take college entrance tests. Students pursuing a college education should be provided intensive vocabulary and written language instruction as well as taught basic skills and areas of knowledge.

## Social Preparation

Students with visual impairments may have very limited, unstructured social experiences because of their need for additional instructions in orientation and mobility (O&M), communication, social interactions, and remedial academics. Their time is filled with meeting the daily demands of school and community activities and there is no remaining time for after-school or summer employment. In a similar manner, their parents' time is taken up by finding appropriate educational programs, securing special services, maintaining on-going medical services, responding to siblings and family members, managing the home, earning a living, and tending to other daily responsibilities. Teachers are responsible for providing basic instructions, as well as adapting curricula, techniques, strategies, and materials to the needs of their students who are visually impaired. Everyone is struggling to find time to take care of the "basics." The consequence is that students with visual impairments may be prepared academically, but not socially and may have very little concrete or realistic ideas about their career future (Simpson, Huebner, & Roberts, 1980).

In college settings, students are expected to be responsible for both their academic life and their personal life. In order to be successful in college, students need to be as self-sufficient and productive as possible. Any student considering college opportunities should be able to act independently, negotiate transportation facilities, attend to personal needs, plan use of money, and behave appropriately in different situations (Davis, Dollahan, Jacobs, Jaeger, & Marici, 1986; Dollahan & Jacobs, 1987; Jarrow et al., 1991).

Davie (1987) suggested several specific activities that parents can do at home to promote independence for their child who is disabled: (1) Share cleaning, shopping, and meal preparation responsibilities; (2) teach money management skills by providing a weekly allowance or income for doing small jobs; (3) encourage participation in leisure activities, such as clubs, classes, or other group activities which can form the basis for ongoing friendships in casual settings; (4) work along side the child who is disabled (companionable modeling) to teach self-confidence and willingness to try independent activities; (5) discuss jobs emphasizing the variety of occupational possibilities; (6) contact the vocational rehabilitation agency; (7) teach scheduling and time management skills by setting up a daily routine, encouraging the child to follow the routine, and compensating for scheduling problems; (8) listen to the child's ideas and suggestions as he/she tries new experiences and tasks; and (9) allow the child to experience failure and to make mistakes.

High school students with visual impairments should be encouraged to take part-time jobs, volunteer for community work, or join disability-related organizations. Such activities place students into the mainstream of worklife, increase their interactions with nondisabled peers and employers, develop job skills, allow exploration of career interests, and provide material for job resumes when seeking full-time employment. Disability-related organizations can provide

support, information, and advocacy for their members (Davie, 1990; HEATH, no date:a).

### **Selecting an Area of Study**

Before choosing a college, students must have some idea of what they want to study (Brill, 1987). Some financial aid programs require students to declare a major area of study before being accepted. The selection of a college will then be dependent upon that school offering a chosen area of study. In considering a future area of study, high school students can (a) discuss career plans and questions with parents, friends, other people who are disabled, and persons working in desirable jobs; (b) discuss academic programs and the possibility of a work-study component with teachers; (c) evaluate personal interests, hobbies, and favorite recreational activities; (d) explore all available college opportunities; and (e) take an active role in writing the Individualized Education Plan (IEP) or Individualized Written Rehabilitation Plan (IWRP) (Brill, 1987; Council of Chief State School Officers Resource Center on Educational Equity, no date; HEATH, 1989c).

In contrast to a self-assessment of abilities, Brown (1990) advocated a very formal assessment process that included (a) instruments that assess reading comprehension and numerical skills; (b) a structured interview to assess generalizable skill level; (c) a learning styles inventory to match the instructional materials and strategies with the student's learning style; (d) other informal interviews, checklists, and assessment strategies; and (e) structured interviews with admission personnel focusing on the student's mathematical skills, communication skills, interpersonal skills, reasoning skills, time management skills, ability to retain information, physical abilities, personal satisfaction with training programs, personal satisfaction with being a student, and motivational level for completing the college program. Brown believed that this extensive assessment program would reduce the dropout rate for students with disabilities and help them better achieve their vocational goals.

Hartman, Baker, and Harris (1986) advised students to keep their disability in perspective when planning for college. They described a set of criteria for choosing a college which should be considered in the following order: (a) availability of training (field of study, reputation of the college, diversity and size of student body, intellectual and social environment of the college), (b) cost (family or third party contributions, financial aid, work-study or cooperative education opportunities, scholarships, internships, savings), and (c) auxiliary aids and accessibility (quality and type of support services appropriate for the student's disability). By emphasizing the criteria in this order, responsibility is placed on students to understand their disability-related needs and to negotiate accommodations with administrators of college programs.

## Educational Financing

Students with disabilities frequently incur additional expenses, such as special equipment, readers, interpreters, notetakers, personal care attendants (including salaries and training expenses), special transportation arrangements, medical expenses not covered by insurance, and food and veterinary bills for dog guides. Vocational rehabilitation agencies may provide tuition expenses; reader and interpreter services; individually prescribed aids and devices contained in the Individualized Written Rehabilitation Program (IWRP); telecommunications, sensory, and other technological aids and devices; and other goods and services to help the person become employable (HEATH, 1992).

Students with disabilities are more likely to be members of lower-income families. They are less likely to have received financial assistance from their families and less likely to have contributed savings from summer work towards their college expenses (HEATH, 1993a). Consequently, students with disabilities are squeezed at both ends of the financial spectrum; they have fewer financial resources and greater living expenses. Most of these students will seek financial help from sources outside their families.

Students who are visually impaired wishing to attend college have several options for funding their education. There are scholarships and financial aid packages offered specifically for students with visual impairments through service, consumer, or community agencies. State vocational rehabilitation agencies often provide financial assistance as part of an individual's rehabilitation plan. Other sources of aid are the U.S. Department of Education, colleges, companies, and nonprofit organizations (Tannenbaum, 1984).

HEATH published *Financial aid for students with disabilities* (1989d) which focused on financial aid for tuition and living expenses. Another financial aid resource is Schlachter and Weber's (1990) *Financial aid for the disabled and their families: 1990-1991* which described financial aid programs established primarily or exclusively for individuals with disabilities and their families. Hartman and Brill (1989) offered detailed financial aid information for students with disabilities including definitions of what constitutes financial aid, what is meant by family contributions, the financial aid process, example of a financial aid package, which expenses are considered to be disability-related, sources of financial aid, lists of resources, and a financial aid checklist.

## Accommodating Students with Visual Impairments

It is at this point that the decision-making process for students with visual impairments varies from students who are not disabled. Students with visual impairments must know what accommodations are needed in order to compensate for their disability. The student must evaluate his or her strengths, weaknesses, abilities, and deficits. Students, parents, teachers, and guidance counselors should



continue to realistically assess the required level of support in order to determine the optimum level of support needed during college (HEATH, no date:a).

For the first time in their lives, many students will assume direct responsibility for obtaining their own accommodations and assistive devices rather than relying on high school teachers to make provisions for them (Yuditsky, 1991). For example, students with visual impairments will need to know how to obtain accessible textbooks and class materials; determine the provider of services; learn how to access libraries and other facilities on campus; determine the amount of notice that should be given in order to receive optimal services; locate, hire, train, and fire readers; and develop a methodology for taking notes, listening to the compressed speech of recorded textbooks, and organizing and writing research papers (Harrell & Curry, 1987; Jarro et al., 1991). For these and other accommodations, students must learn how to advocate for themselves rather than depending upon others to intervene for them.

Section 504 of the Rehabilitation Act of 1973, P.L. 94-142, the recently enacted Americans with Disabilities Act, and other relevant laws require colleges which receive federal funds to accommodate students with disabilities. However, teachers and administrators may not know how to go about making those accommodations. That is why students who are affected must be ready to assert their needs and rights and offer suggestions as to how colleges can provide accommodations. Colleges are not required to make specific accommodations, however, they must provide accommodations which work for the student (HEATH, 1989c; Valdivieso & Hartman, 1991). Legal issues are discussed further in the section on "Legal Requirements" beginning on page 15.

When beginning the process of evaluating colleges, administrators of disabled student services can be consulted even before applications are submitted. Through such contacts, students can discover the availability of programs and services which might make their transition easier. Any personal contacts which can lead to the location of an appropriate advisor, friend, or mentor on campus can be very helpful to a student with a visual impairment during the initial transition period (Davie, 1990; Davis, Dollahan et al., 1986; Dollahan & Jacobs, 1987; HEATH, no date:a).

Often, the best way to evaluate a college is to visit the campus and meet with administrators, teachers, and students. The optimal time to visit a campus is when classes are in session. Students with visual impairments will be able to make a better judgement about accommodations if students, activities, and distractions are present. Examination times should be avoided, because students and teachers may not have the time or inclination to visit with prospective students (HEATH, 1989c).

There are many areas that need to be considered when evaluating a college for someone with a visual disability (Michael, 1987; Jarro et al., 1991; Satcher & Dooley-Dickey, 1991; Spiers, 1992). Does the college modify its admission procedures to include priority scheduling and registration? Can the student obtain advance notice of required books and materials, as well as course syllabi?

What support services does the college provide (e.g., transportation, adapted textbooks, orientation to campus, assistance in filling out forms)? Can preferential seating be arranged? How are classes adapted so that students with disabilities participate? What alternative testing options are available? Is counseling provided (e.g., personal, academic, social, career)? What is the attitude and behavior of faculty members toward students with disabilities? Is there a disabled student services coordinator and what role does that person play? Does the college provide assistance with study skills? Does someone provide instructions in library use and assist with library retrievals? Are social groups and extracurricular activities open to students with disabilities? Is information available about the rights of students with disabilities? Is there a listing of available college services and overall resources, including adaptive devices? Can the student obtain timely information about scholarships? Is there a listing of outside services and support groups in the community? Does the college allow advance visits to classrooms? Has the college removed architectural barriers? Does the college provide adapted computer equipment and software, voice synthesizers, braille printers, scanners, Opticans, closed circuit televisions (CCTVs), typewriters, large print copiers, talking or braille calculators, raised line drawing kits, 4-track tape recorders, talking spell-checkers, adapted laboratory equipment, tutors, readers, notetakers, or typists?

Other factors to be considered when selecting a suitable college include location, level of competitiveness, program of study, size, cost, campus life, affiliation (e.g., religious), and other special features. To help a student evaluate a college, a student may wish to participate in a summer orientation session for students with disabilities or to enroll in a regular college course during summer school. This would allow students to experience the college, ask questions, and observe how well the campus is suited to meet their needs (Davie, 1990; Davis, Dollahan, Jacobs, Jaeger, & Marici, 1986; Dollahan & Jacobs, 1987; HEATH, no date:a).

The staff at the National Information Center for Children and Youth with Disabilities (1991a) developed a set of record-keeping guidelines to be used when contacting adult service providers and administrators of college programs. Because high schools do not keep permanent records, students should obtain copies of all high school transcripts, evaluations, tests, and therapist reports before leaving the school system. For the same reason, students should also obtain copies of any on-the-job training reports or other work experiences for later reference. Valuable information can be lost unless individuals take this precaution (Davie, 1990; HEATH, no date:a). When talking to agency or school personnel, students should keep notes of all conversations, rather than relying on memory; keep copies of any written correspondence; and save brochures or handouts from agencies and colleges (Valdivieso & Hartman, 1991). Students can then periodically review these notes and records and follow-up on incomplete or pending business.



## Timelines

A few authors developed specific activity timelines for the transition from high school to college (American Foundation for the Blind, 1990; Davis et al., 1986; Dollahan & Jacobs, 1987; National Information Center for Children and Youth with Disabilities, 1991c). For this monograph, the materials were merged and in some cases, adapted for students with visual impairments. Students, parents, teachers, and counselors can use these materials as general guidelines for completing tasks. Davis et al. (1986) and Dollahan and Jacobs (1987) also included specific examples of letters, checklists, and forms in their publications.

### A. Junior High School:

1. Become involved in career exploration activities.
2. Discuss interests and capabilities with school guidance counselor.
3. Participate in vocational assessment activities.
4. Read books, attend career fairs, and talk with people in the community about careers.
5. Make preliminary decisions about possible careers.

### B. Ninth Grade:

1. Create a four-year plan of study of preparatory classes for college. Review this plan with guidance counselor.
2. Remind guidance counselor to order standardized achievement tests in accessible format.
3. Keep lists of interests, personal characteristics, skills, and abilities.
4. Seek out career exploration resources including books, tapes, and catalogs in the school library and the guidance counselor's office.
5. Discuss occupations with guidance counselor and parents.
6. Participate in extracurricular activities, clubs, and organizations.
7. Identify part-time jobs and volunteer work performed by sighted and visually impaired peers.
8. Meet with vocational rehabilitation counselor at the state agency.
9. Include career exploration activities and broad vocational goals in annual IEP.
10. Obtain public library card, apply for membership in the Library for the Blind, and register with Recordings for the Blind.
11. Enroll in summer enrichment program (e.g., braille, typing, computers, O&M).

### C. Tenth Grade:

1. Explore interests, values, and decision-making strategies.

2. Develop a tentative list of colleges.
3. Identify colleges of interest and explore those schools' catalogs.
4. Identify academic and social competencies needed by students who succeed in college settings.
5. Reevaluate and adjust course of study as needed.
6. Complete an interest inventory, a prevocational evaluation, and an independent living evaluation. Review results with guidance counselor or teacher.
7. Complete standardized achievement tests and review results. Arrange for necessary tutoring.
8. Contact Social Security Office and determine eligibility for services. Apply for a Social Security number.
9. Apply for identification card from a state agency or the American Foundation for the Blind.
10. Meet with vocational rehabilitation counselor at the state agency to discuss vocational preparation and college plans. Include relevant goals in annual IEP.
11. Apply for reduced fare cards from local transportation systems.
12. Investigate careers by talking with people with visual impairments who are employed in those fields. Contacts can be made through the American Foundation for the Blind or other organizations.
13. Continue to consult guidance counselors, teachers, recent graduates, parents, adult friends, classmates, and college admissions officers about careers and programs.
14. Consider taking a part-time or summer job or becoming a volunteer.
15. Enroll in summer enrichment program (e.g., braille, computers, O&M, study skills, report-writing).

D. Eleventh Grade:

1. September

- a. Identify additional sources of information about colleges.
- b. Meet with guidance counselor to review courses and to plan for senior year.
- c. Evaluate extracurricular activities. Include opportunities for leadership positions and developing skills.
- d. Consider taking a part-time job or becoming a volunteer.

2. October

- a. Register to take standardized admission tests.
- b. Continue to investigate careers by participating in job fairs, career days, and field trips.

- c. Meet with vocational rehabilitation counselor at the state agency to discuss college programs.
- 3. November
  - a. Request college catalogs and review these and other descriptive materials.
- 4. December
  - a. Discuss special testing needs with guidance counselor. Make preliminary arrangements for standardized tests in an assessable format.
- 5. February
  - a. Discuss with parents plans and costs of attending college.
- 6. March
  - a. Meet with guidance counselor and finalize the list of colleges to research and visit.
  - b. Finalize arrangements for special testing and/or sign up for regular standardized tests.
- 7. April
  - a. Write for information and college application forms. Obtain specific information (application procedures, time frames, type of financial aid, etc.) from college fairs or from meeting with admissions officers.
  - b. Call and arrange visits to colleges.
  - c. Sign up for achievement tests in subjects of special strengths if required by colleges under consideration.
- 8. May
  - a. Continue to read, interview, and use computer searches and other sources of information about colleges.
  - b. Enroll in a summer enrichment program or register for tutoring.

9. June

- a. Arrange visits to colleges.
- b. Prepare for standardized tests.

E. Twelfth Grade:

1. September

- a. Reduce list of possible colleges.
- b. Obtain necessary letters of recommendations from teachers. Provide writers with addressed and stamped envelopes.
- c. Create a checklist of application deadlines. Review and mail applications according to those deadlines.
- d. Meet with guidance counselor to discuss academic and personal qualifications for colleges. Evaluate independent living skills by consulting with guidance counselor, teachers, and parents.
- e. Register for standardized tests and arrange to have scores sent to selected colleges.
- f. Meet with vocational rehabilitation counselor at the state agency to review community support services and to obtain information about state and national organizations.
- g. Review services available through vocational rehabilitation and develop an IWRP, if appropriate.

2. October

- a. Write necessary application essays.
- b. Meet with visiting college representatives.
- c. Continue to investigate careers through career days, college fairs, and job fairs.
- d. Register for scholarships including financial assistance available to students with visual impairments.

3. November

- a. Complete all early decision responses before deadlines.
- b. File early financial aid forms.
- c. Finalize personal essays, if required.
- d. Complete college interviews and visits.

4. December
  - a. Complete financial aid applications to be mailed in January with tax information.
  - b. Submit all applications with January 1st deadline.
  - c. Send standardized test scores to colleges.
5. January
  - a. Finalize and mail financial aid forms.
  - b. Recheck senior courses and credits for graduation.
  - c. Arrange to have mid-year reports sent to colleges.
6. February
  - a. Recheck calendar from September and keep up-to-date.
7. March
  - a. Rank colleges once acceptances begin to arrive.
  - b. Revisit top college choices and review available resources.
  - c. Inquire about financial aid and scholarships.
8. April
  - a. Once acceptances arrive, select a college and pay deposit.
  - b. Fight "Senioritis," because final grades do count.
  - c. Notify high school guidance counselor about decision.
  - d. Notify vocational rehabilitation counselor about decision. Keep counselor informed of dates, budgets, and college requirements.
  - e. When accepted by favored college, contact the college's office of disabled student services to discuss needs and accessibility.
  - f. Meet all health and immunization requirements.
  - g. Submit housing deposits and completed forms.
  - h. Confirm registration with Recordings for the Blind in order to obtain textbooks.
9. May
  - a. Assess finances and plan how to pay for college.
  - b. Notify all colleges of decision.
  - c. Notify guidance counselor so that final grades are sent to the correct college.
  - d. Plan for high school graduation.



## Legal Requirements

Section 504 of the Rehabilitation Act of 1973 requires that schools which are recipients of federal funds must not deny benefits to students with disabilities, exclude from participation, or discriminate in the recruitment, admission, or treatment of students who have informed the college of their disability (HEATH, no date:b; U.S. Department of Education, Office for Civil Rights, 1991). Colleges must also provide auxiliary aids and services during the interim when a person is being evaluated for eligibility; this is further discussed in the next section on "Admissions Testing." The Americans with Disabilities Act (ADA) "prohibits discrimination against people with disabilities in the areas of private employment, public accommodations and services, transportation, and telecommunications" (HEATH, 1990a, p. 1). The effect of ADA on colleges will be renewed attention on disability access and a continuation of accessibility as mandated by the Rehabilitation Act of 1973. The Association on Handicapped Student Service Programs in Postsecondary Education (no date) predicts that the effect of ADA will be increased enrollment by students with disabilities and increased use of campus education, recreational, and cultural facilities.

Students with documented disabilities may request modifications, accommodations, or auxiliary aids to allow them to participate in college programs and activities. Colleges may not deny a service to a student with a disability if that service is offered to nondisabled students. Aids, benefits, and services are not required to produce the same level of achievement for disabled and nondisabled persons, but they must allow persons with disabilities an equal opportunity to obtain the same results, to gain the same benefits, or to reach the same levels of achievement as their nondisabled peers (HEATH, no date:b; U.S. Department of Education, Office for Civil Rights, 1991).

Unlike the services provided during elementary and secondary education, Section 504 only requires that colleges make reasonable accommodations. Students accustomed to special treatment in high school "may be surprised by the absence of such conditions on the college campus" (Rothstein, 1986, p. 256). Aids provided to accommodate students with disabilities do not have to be the most sophisticated, but they must be effective for that particular student. Aids or services should be selected in consultation with the students using them (HEATH, no date:b; U.S. Department of Education, Office for Civil Rights, 1991).

Colleges receiving federal funds must provide auxiliary aids needed for nonpersonal or classroom use, regardless of budget constraints or because college administrators believe that other organizations should provide the aid, benefit, or service. Aids and services for personal use (e.g., bathing, dressing, readers for individual study time) are not required to be furnished by the college. Colleges can seek financial help from outside sources, such as state rehabilitation agencies or private charity organizations. Vocational rehabilitation will provide funds for services to eligible individuals if funding is available. As a general rule, vocational rehabilitation funds are not available for graduate school. Colleges

must provide aids to foreign students and to nondegree students (Rothstein, 1986; U.S. Department of Education, Office for Civil Rights, 1991).

Programs and activities must be located in the most integrated and appropriate setting. Students with disabilities must not be concentrated or isolated in settings segregated from the rest of the student body. Colleges cannot institute rules that limit the participation of students with disabilities (e.g., prohibiting tape recorders in classrooms or dog guides in campus buildings). Accessible and convenient housing must be provided at the same cost as available to other students. Students with disabilities must have an equal opportunity to benefit from financial assistance and from employment assistance. Students with disabilities should be provided with an equal opportunity to participate in intercollegiate, club, and intramural athletics. Counseling and placement services should be provided in a nondiscriminatory manner (e.g., qualified students with disabilities must not be counseled toward more restrictive career objectives than nondisabled students with similar interests and abilities) (U.S. Department of Education, Office for Civil Rights, 1988).

Rothstein (1986) suggested the following steps in confronting issues affecting persons with disabilities and avoiding liability: (1) Keep current on cases about disability discrimination claims; (2) realize that students, faculty, staff, and others are protected under the Rehabilitation Act; (3) maintain a good working relationship with the office for disabled student services; (4) work with the office for disabled student services to develop and implement workshops, training sessions, and other information networks; and (5) create a disability accessibility committee to plan, develop, or renovate major campus structures, provide consultation for programs, consider traffic patterns or new major facilities, and initiate programs to improve accessibility for people with disabilities. By acting in this manner, Rothstein believes that defendants can establish good faith in complying with Section 504 of the Rehabilitation Act of 1973.

### Admissions Testing

McLoughlin (1992) reported that, in general, students with disabilities do not perform as well as nondisabled students on measures commonly used by colleges to select applicants. High school grades, ACT assessment scores, and first-year college grades of students with disabilities are typically lower than those of nondisabled students (A.C.T., 1980). This might be perceived as an indicator of problems to come during college, however, Hurley, Hirshorne, Hunt, and Kavale (1979) found evidence that commonly used aptitude tests have almost no predictive validity for forecasting the achievement of students with disabilities.

In a later report, Bennett, Ragosta, and Stricker (1988) found that students with visual impairments did perform comparable to sighted students on tests of academic ability (SAT, ACT, verbal scales of the WISC and WAIS, and Hayes-Binet and Interim Hayes-Binet intelligence scales, but their achievement test scores tended to be lower. This discrepancy may be due to differences in the

groups of students with visual impairments taking ability and achievement tests (e.g., a higher achieving group may take ability tests while achievement tests are often mandatory for everyone), due to content or administrative procedures for achievement tests being less appropriate for students with visual impairments (e.g., group versus individually administered measures), or due to a real difference between general cognitive ability and accumulated academic knowledge.

Any public or private organization that provides testing needed for licensure, certification, or credentialing that applies to the educational process cannot discriminate on the basis of disability. This includes agencies that administer the GRE, SAT, or ACT tests (King & Jarrow, 1992). However, the way in which adaptations are made and nondiscriminatory methods of reporting adaptations to college administrators are still being debated up to the present time.

The College Board has provided special testing arrangements for students with disabilities since 1939 (*Practical Guide*, 1986). Modifications may occur for format (e.g., braille, large type, audio cassette, magnifying glass, abacus, typewriter) and for conditions. Modifications to conditions include extended testing time, extra rest periods, individual instructions or supervision, flexible test dates, separate test rooms or administration sites, readers, and transcribers. The use of calculators is forbidden by the College Board.

Bennett and Ragosta (1988) suggested two other adaptations that could be used in admissions testing for people with visual impairments. First, complex graphical representations of data could be converted to a series of raised-line drawings. Second, test items could be rewritten to include greater details about the type and content of drawings. No information was available to determine if either of these methods have actually been used in a testing situation.

According to Section 504 of the Rehabilitation Act of 1973, colleges receiving federal financial assistance must not discriminate in the recruitment, admission, or treatment of students. Colleges may not limit the number of students with disabilities. Colleges are also forbidden from using admissions tests or criteria that inadequately measure the academic qualifications of students with disabilities because special accommodation provisions were not made (HEATH, no date:b). In general, the courts have found that persons with disabilities cannot be excluded based on patronizing assumptions about their risks and abilities. Someone is more likely to be found "not otherwise qualified" when there is risk of harm or injury to other people rather than personal risk to that individual (Rothstein, 1986).

Colleges are forbidden from making preadmission inquiries about disabilities (HEATH, no date:b). Under current practice, admission scores that were obtained using nonstandard formats (e.g., readers, magnification devices, cassette tapes) are "flagged." This practice makes college admissions officials aware that the test was specially administered and that it may not be entirely representative of the student's academic ability (*Practical Guide*, 1986). Rothstein (1986) considered the practice discriminatory unless the "flagging" notation was

used for all tests given in a nonstandard format and not just for students with disabilities.

## Classroom Accommodations

### Problems in the Classroom and Beyond

Students with visual impairments often have difficulty keeping up with reading assignments in college. Students who use large print, braille, or talking books often read at slower speeds than their sighted peers. Reading materials must be purchased four to six weeks before classes begin in order for the materials to be brailled or taped. Large print materials can be difficult to locate. When reading materials are assigned on short notice, students with visual impairments must rely on readers. Braille or recorded materials are generally not available on short notice. Readers are often not available for library work or for accessing research reports or short articles. Students listening only to recorded materials may have problems concentrating and understanding the structure of texts (Haugann, 1987; Spiers, 1992). The net result is that students with visual impairments have problems locating resources to keep up with their assigned reading and deviations from original announcements cause additional hardships. These hardships are not insurmountable, but they can cause delays and frustrations when trying to keep pace with the rest of the class.

Besides problems reading texts and class materials, students with visual impairments face other barriers in reaching their educational goals. Students with visual impairments can have problems communicating with administrators and teachers, obtaining tests in accessible formats, obtaining accessible housing, obtaining accurate information, remaining mobile in a large and unfamiliar setting, locating transportation, and participating in recreational or athletic activities (Haugann, 1987; Spiers, 1992).

### Disabled Student Services

Disabled student services were developed to ensure that college environments are physically, programmatically, and attitudinally accessible to any student with a disability. While these programs can be called by many names at different institutions, in this monograph, they will be referred to as "disabled student services." Some of the services provided include (a) removal of architectural and structural barriers; (b) counseling, advisement, orientation, and scheduling assistance; (c) academic support services (e.g., adaptive testing, provision of educational materials in alternate media, readers, scribes, notetakers, sign language interpreters, tutors); (d) educational assessment; (e) in-service training for faculty and staff to facilitate successful interactions with students with disabilities; (f) adapted transportation; and (g) accessible campus housing (*Association on Handicapped Student Service Programs in Postsecondary Education*, no date).

Disabled student services may require that a student with a visual impairment schedule an on-site interview, one-day visit, and/or participate in



summer sessions of orientation and course work before actual college enrollment. These experiences allow students with visual impairments to see for themselves the educational setting, the distances involved, the terrain of the campus, the range of services available, and the accommodations in residence halls and cafeterias. Students also have opportunities to meet with other disabled and nondisabled students (HEATH, 1989d).

### **Overcoming Problems in the Classroom**

Many authors have suggested ways to accommodate students with visual impairments in the college classroom. The American Association for the Advancement of Science (1991); Barry, Brinckerhoff, Keeney, and Smith (1983); Brinckerhoff (1991); Fichten, Amsel, Bourdon, and Creti (1988); HEATH (1986); HEATH (no date:b); Hippolitus (1986); Ricker (1981a, 1981b); Ricker & Benefield (1981); Ricker & Rodgers (1981); Spiers (1992); and White and Maxson (no date) offered the following suggestions for helping all students (including those with disabilities) succeed in the classroom:

1. Organize and order all textbooks and supplementary materials at least three months in advance. Report any textbook or edition changes to the bookstore and the office of disabled student services as soon as possible.
2. Work with students so that materials for technical classes requiring special materials may be ordered at least one semester in advance.
3. Provide students with a detailed course syllabus that is available before registration week. Make class materials available to students in advance.
4. Select textbooks with study guides.
5. Encourage students to make appointments during office hours to self-disclose their disability. When students identify themselves as having a disability, the faculty member should ask how he or she can assist with their studies.
6. Modify and adapt curricula to allow a student with a disability to satisfactorily complete a course goal or assignment, but not compromise the content of the materials or lower program standards. Modifications must not give students with disabilities an advantage or disadvantage over their sighted peers.
7. Modify visually oriented assignments (lab observations, etc.) so that all students are involved in the same learning experience and have similar class responsibilities and laboratory assignments.
8. Communicate with students and with the office of disabled student services about making reasonable accommodations. When a needed service is unavailable, the institution must provide a reasonable replacement that offers the same assistance and that is acceptable to the student.
9. Make all assignments in advance. Give assignments in oral and written format to avoid confusion.

10. Clearly define expectations in advance (e.g., grading, material to be covered, due dates).
11. Announce reading assignments well in advance, because it takes an average of six weeks to tape record a book.
12. Allow students with visual impairments to be seated in the most advantageous place, wherever that may be.
13. Make space accessible, especially laboratories.
14. Identify yourself when approaching a student with a visual impairment and let that student know when you are leaving. Ask class members to identify themselves when participating in class discussions. Call upon students by name.
15. Begin lectures with an outline of materials to be covered during that period. Briefly summarize key points at the end of class.
16. Speak directly to students with visual impairments and use gestures and natural expressions to convey meaning. Do not speak through a third party.
17. Speak clearly. Write legibly. Be specific.
18. Face the class when lecturing. Standing in front of a window or other source of light makes it difficult to be seen.
19. Read aloud all blackboard, overhead transparencies, or visual diagrams in a clear and precise manner. Avoid words such as "here" and "there."
20. Present new or technical vocabulary on the board or with a handout. Use terms in context to convey their meaning.
21. Provide tactile versions of printed charts, graphs, and models.
22. Allow and encourage students with visual impairments to tape record lectures or use notetakers. Other technological devices (e.g., print magnifiers, talking calculators, machines that convert printed text into spoken words, and computer generated voice synthesizers) enable many students with disabilities to handle tasks that they would not otherwise be able to perform.
23. Avoid mimeograph printed materials. Students with low vision may be able to see better with clear black ink on white or pale yellow paper.
24. Let students know in advance about field trips or any changes to the classroom location.
25. Help students with visual impairments visualize their surroundings by familiarizing them with the layout of the classroom or workshop (especially, raised platforms, low-hanging objects, and exits) and specific tools, equipment, and materials.
26. When in doubt about whether or not to offer assistance, simply ask the student directly. Don't assume that you know what a student with a visual impairment knows or what they can do.
27. Ask students with disabilities which words and terminology are appropriate to use (e.g., "see," "hear," "walk"). It is appropriate to refer to concepts relating to a disability when the issue is related to course materials.

28. Provide adequate opportunities for questions and answers. Conduct review sessions. Guide students with disabilities to after-class appointments when the student requires more time than is available during the class period. The teacher may schedule a regular weekly appointment with the student with a disability.
29. Depending upon the situation, teachers may decide to either inquire about excessive absences or lack of class participation, or choose to ignore these behaviors.
30. Confront students about regularly occurring socially inappropriate behaviors.
31. Talk with volunteers and to students when the volunteer is doing a noticeably poor job or is offering too much help.
32. Provide study questions for exams. Explain what constitutes a good answer to a question and why it is a good answer.
33. Make arrangements for testing procedures and laboratory assignments in advance of actual test or assignment dates.
34. Continue to check with students to see "if everything is okay" and to remind them of adjustments that need to be made.
35. Recommend tutors (or other types of assistance) if the student appears to be having trouble.
36. Issue a failing grade when that is the grade earned by the student.
37. Encourage students to use disabled student services (e.g., pre-registration, assistance in ordering taped textbooks, alternative testing arrangements, specialized study aids, peer support groups, diagnostic consultation, study skills, and academic tutorial assistance).
38. Teachers may consult third parties when seeking professional information or resources about a disability. Teachers may ask students with visual impairments where they can find such resources.

Students with hidden disabilities (hearing impairment or low vision) may be more reluctant than students with obvious disabilities (wheelchair user or person using a sighted guide) to approach a faculty member about test adaptations. Students with disabilities that fluctuate over time and those that are of a temporary nature, recur, or are precipitous may not be truly aware of the effect of their disability on class performance. In the same way, students who are newly disabled may be still adjusting to their disability and may be undecided about which adaptations work best for them. Some disabilities have periods of remission when no adaptations are needed and periods of acuteness when a greater number of adaptations will be required (Hartman & Redden, 1985). Students in these situations will vary in their need for adaptations over the course year. The student and teacher will have to work closely together to ensure that the right amount of assistance is available at any one point in time. Disabled student services can work with students with hidden disabilities to help them find ways of obtaining accommodations (HEATH, 1989b).

Students with visual impairments who actively seek to obtain accommodations for their disability will be more likely to achieve their college goals than those students who simply accept whatever is offered them. Brinckerhoff (1991), Barry et al. (1983), Fichten et al. (1988), Hamilton (1989), and Spiers (1992) made the following suggestions to help students with disabilities succeed in the college classroom:

1. Talk to teachers before the beginning of the semester about the disability. Become knowledgeable and comfortable about describing the disability and learn how to self-advocate. All that is required in explaining a disability is what can and cannot be done in a typical classroom situation. It is not necessary to share personal medical histories with teachers or with other students.
2. Tell teachers about unusual amounts of class absences, if they can be anticipated.
3. Set realistic goals and priorities for coursework.
4. Students with disabilities who do not need special accommodations do not have to identify themselves. However, if needs change during the year, either due to the nature of the disability or to the demands of the class, it is the student's responsibility to identify him or herself and to request services.
5. Arrange for texts or non-exam class materials to be made available in an alternative reading medium.
6. Ask teachers to read what is written on the board or overhead projector.
7. Request approval from teachers to audiotape lectures when there is a difficulty taking notes in class.
8. Seek assistance from classmates for activities such as notetaking.
9. During class and during available office hours, ask questions and engage in discussions.
10. Let teachers know which words are permissible to use (e.g., "see," "hear," "walk").
11. Discuss in advance how tests or in-class assignments will be handled. Do not wait until the last minute to tell a teacher about a need for readers, writers, a different format, or extra time for completing a test or assignment.
12. In general, plan on two hours of study time for every hour in class. Include study breaks to avoid fatigue.
13. If a tape recorder is used to read lectures, review the tape as soon after class as possible.
14. Make notes of any questions that should be answered before the next exam.
15. Contact the disabled student services office to obtain a list of services. Ask detailed questions about those services to insure that you understand what is actually being offered. Get information about advanced bookings, availability, and requirements associated with the receipt of services.



16. A student having trouble should seek help from the office of disabled student services and other campus support services early in the semester.
17. Students with disabilities are not required to participate in support groups, to be interviewed, or to take part in research projects or surveys in exchange for receiving services. Services received are based solely on the disability and the college's special services policy, not on a willingness to participate in extracurricular activities.
18. Expect to be educated, but also to educate others about people with disabilities and their abilities and needs.

Some activities are inappropriate for either teachers or students with disabilities. Teachers should not warn students with disabilities that a course will be difficult for them to complete. Teachers may not later refuse to make promised adjustments. Teachers may not alter class formats in ways that impose hardships on other students (e.g., not turning off the lights during a slide presentation to accommodate a student with a hearing impairment who lip-reads). Accommodations to class formats should be made in ways that do not inconvenience other students. It is not the teacher's responsibility to arrange for non-exam materials to be taped or brailled. Teachers should not grant routine requests for extensions on assignments except when the delay is caused by the need for taped materials. Do not speak louder than necessary. Do not pet the dog guide. Teachers should not mislead students with disabilities into believing that everything is okay, when the student is obviously unable to master the materials (Fichten et al., 1988; Spiers, 1992).

There are certain behaviors that are inappropriate for students with disabilities. Just as teachers should not allow certain behaviors, students should not assume those behaviors or make those requests. Students should not discuss their private or social life with their teachers; other college personnel, such as counselors, should deal with these issues. Students with visual impairments can use volunteer notetakers, but they cannot ask for the teacher's own notes. Students with disabilities should not request special consideration when a course is difficult and can still be mastered. Students may request an occasional extension of an assignment (especially if this policy is granted to students without disabilities), but they should not request a reduced work load or exemption from course requirements. Routine requests for extensions on assignments are not appropriate except in the case where students with visual impairments need taped materials (Fichten et al., 1988).

### **Testing Accommodations**

Academic standards in the college classroom must not be compromised because of accommodations in testing procedures. Test results must remain valid and comparable to other students in the class. Modifications must be consistent; adaptations should eliminate disadvantages and not give students with disabilities



an advantage (Hartman & Redden, 1985). Students with visual impairments must not be excused from taking tests, but must be allowed to experience and to grow from the same feedback about progress and overall achievement as other students (Brown, Keller, Lang, & Ricker, 1983). Simply stated, students with disabilities have the same right as other students to fail.

Tests that are not adapted may not provide a true assessment of the ability of a student who is visually impaired. Tests should measure students' abilities and knowledge about a subject area and not their physical ability to manipulate testing materials or their reading speed. Students with disabilities may be at a disadvantage in testing situations because accommodations for the disability can make the test too long to complete in the specified time period, the format of the test cannot be used by the student, the test location is inaccessible, or the accommodations cause excessive fatigue for students with disabilities (Rothstein, 1986).

Accommodation may not always be required because sometimes the requested accommodation affects the skill or aptitude being measured. For example, in tests of knowledge or expertise, speed is not a critical component; in tests of skill, speed is often a component of what is being measured (King & Jarrow, 1992). Other adaptations are not appropriate for other reasons. An example of an inappropriate adaptation is a teacher who allows a student with a disability to complete a regular in-class test in an unsupervised setting (e.g., a "take-home" exam). This gives the student an unfair advantage and prevents the student from making necessary educational choices based on a true assessment of his or her performance. Also, the teacher cannot be sure of whose work is being graded (Hartman & Redden, 1985).

Many of the accommodations used in testing situations are low-cost (e.g., extended time or enlarged print available from a copier). Services that may cost money (e.g., braille print, reader) can often be partially or wholly reimbursed by an office or agency serving people with disabilities (King & Jarrow, 1992).

Brown et al. (1983); Hartman and Redden (1985); HEATH (no date:b); and King and Jarrow (1992) offered the following suggestions for testing students with disabilities:

1. Allow enough time for students to demonstrate achievement. Because there are no rigid rules for determining the amount of additional time that should be allowed for adaptations, extended time should be flexible to permit "reasonable progress without dawdling" (Hartman & Redden, 1985, p. 4).
2. Enlarge regular size print while controlling for quality of contrast and available illumination.
3. When reading a test directly to the student or to an audiotape, read just the question and avoid interpretations. Give the test to the reader in sufficient time for review, especially if the test contains technical or scientific terminology. Provide the reader with a written description of graphs or charts to prevent the student from being given either too much or too little

- information about the figure.
4. Use the correct braille code when braille materials (e.g., grade one, grade two). Only students who can read braille should be provided with braille materials.
  5. Notetakers or proctors should record exactly the student's responses without reacting to his or her answers.
  6. Proctors should be trained in ways of reading aloud, provided with practice in writing exactly what is dictated, and counseled about maintaining the integrity and ethics of the test situation.
  7. Cassette tape recorders used in conjunction with talking calculators can record the steps and calculations used by students. Teachers can then ascertain whether or not an error was produced by a lack of understanding of the procedure or an error in calculations.
  8. When spelling and punctuation are related to the course objectives, the student and teacher must determine a way for these items to be evaluated.
  9. When a question arises about how to interpret a student-created diagram, the teacher can ask the student to describe the depicted diagram before assessing their answer.
  10. Lab tests should be limited to the skills and procedures practiced in previous lab sessions.
  11. Computer software programs or other technology such as electronic optical aids (Visualtek, Optican, Kurzweil) may be used during testing situations.
  12. Students can record their answers using a typewriter, computer, or tape recorder.
  13. If possible, give adapted tests in the same classroom and at the same time as other students are being tested. If the exam must be administered in another place, provide a setting that is conducive to concentration.
  14. For objectivity's sake, the proctor should be someone other than the student's instructor, reader, or interpreter. Students may be especially intimidated by their own teachers administering exams.
  15. Remove architectural barriers in the testing situation.
  16. The frequency of tests may be increased.
  17. Whenever there is a question about the use of an adaptation, a reliable outside person can help verify its need.
  18. The use of any modifications should be agreed upon by all parties at the beginning of the semester. Colleges cannot decide on their own about the use of accommodations; agreement must be reached with the student.

## Computers

It is important for all students, including those with disabilities, to become computer literate, because of the increasingly important role that technology plays in the career development and vocational maturity of individuals (Bender, Richmond, & Pinson-Millburn, 1985). Students with disabilities continue to have

an increased need for computer access as computer use is integrated throughout college curricula.

Creating an accessible mainframe computer system faces significant challenges. There is no one individual component or system which meets all the varied needs of students who are visually impaired. Most equipment requires supportive hardware (e.g., speech-output systems or display emulators) and software (e.g., braille translation programs or communication programs) to allow microcomputers to interact with the mainframe computer and/or produce displays in an accessible medium. Computer systems existing in different physical locations must be interfaced to the mainframe computer. Computer systems continue to be relatively expensive, even though the costs are decreasing (Kessler, 1984).

In spite of these difficulties, students with visual impairments have the legal right to enroll in and attempt to successfully meet the requirements of courses using computers; the opportunity to write, edit, and produce class assignments without the need of sighted assistants; and the right to use computers in class projects where computers are not necessarily required (e.g., spreadsheets and management files). Section 504 of the Rehabilitation Act of 1973 requires that all students including those with disabilities have nondiscriminatory access to campus computers that are part of the normal college experience (HEATH, 1990b; Kessler, 1984).

### **Science Laboratories**

Barrier-free laboratories and classrooms are usually easily and inexpensively created, they benefit all students, they are required by federal law, and they help supply the critical need for additional science and engineering professionals (American Association for the Advancement of Science, 1991). A science teacher does not have to develop accommodations in a vacuum; a large group of experienced scientists and engineers have volunteered to share their experiences with individuals wishing to create barrier-free laboratories. The American Association for the Advancement of Science maintains a register of more than 1,200 scientists and engineers with disabilities who are willing and available to share information and coping strategies by either telephone or mail (HEATH, 1986). Because of the unique needs of individual students, teachers should always consult with the individuals involved to avoid costly and unnecessary adaptations.

Ricker was involved in creating a series of adaptations for students with visual impairments enrolled in biology classes (Ricker, 1981a, 1981b; Ricker & Benefield, 1981; Ricker & Rodgers, 1981). The following techniques and equipment were actually used and evaluated by students with visual impairments: microprojectors, micro-slide-viewers, CCTVs, rear viewing screens, small projectors for individual viewing, modified syringes and balances; mounted syringes in ring stands to measure hazardous liquids, squeeze-type dispensers, REPIPET Jr. (plunger mechanism to dispense fixed amounts), audicator (audio liquid level

indicator), tactile diagrams created through thermoform machines, tape recorded descriptions, modified plastic body parts, and pop-it beads. The advantage of many of these materials is that they could still be used by sighted students. The reports concluded with information about companies supplying the equipment and supplies.

Ricker (1981b) also developed and evaluated audio scripts to be used with tactile diagrams in an introductory biology course which included students with visual impairments. He recommended that the reader begin with the details of the diagram and then build from those details to form a mental image of the entire object. The outermost parts of the diagram should be discussed first, then specific components could be located by using the terms "six o'clock," "top," "over," "below," etc. A specific sound could be incorporated to indicate that a new concept is being introduced. This would allow the student to stop the tape for review or additional study before proceeding to new material. The description should conclude with a summary to incorporate separate elements of the diagram into a mental image of the entire unit. A glossary in grade one braille should be developed separately to demonstrate the exact spelling of new terms.

Students with visual impairments can be involved in almost all stages of laboratory work if appropriate adaptations are made. However, there are some activities which may be dangerous to the student or to others, regardless of the procedural changes. For example, a student in a chemistry laboratory must handle and dispense potentially hazardous liquids. Before a student proceeds in this activity, Ricker and Benefield (1981) cautioned that a teacher must decide if the student can demonstrate the correct use of the technique, if the student has a positive attitude with respect to his or her ability to perform the measurement, and if the physical arrangements of the laboratory permit the activity to be performed in an effective and safe manner.

Laboratory activities incorporating the suggested tactile diagrams and verbal descriptions are only one part of the learning activity. Students with visual impairments are still expected to obtain information from textbooks and lectures, just like other students.

### **Transition Programs**

Colleges and agencies recognize the need for quality transition programs to assist students with disabilities throughout the transition from high school to college. Several of these programs are briefly described in this section.

Arkansas Enterprises for the Blind operates a college preparation course which covers mobility skills, communicative skills, activities of daily living, note-taking skills, relationships between students and teachers, test-taking skills, and accommodations for laboratory courses and physical education classes. During unstructured discussion times, the leader and students share ideas about potential problems including alcohol consumption, cheating, and relationships with other students. Notetaking techniques are emphasized because many of the students



seem to believe that people with visual impairments have excellent memories and notetaking is unnecessary. To overcome this fallacy, guest speakers deliver sample lectures followed by difficult tests on the materials. Only after receiving a poor test grade do many of the students realize the importance of developing some sort of notetaking technique (Thume, 1979).

The Evansville Association for the Blind (Indiana) sponsors an on-campus summer transition program at the University of Evansville which exposes students to the rigors of college life (e.g., living in dormitories, going through registration, and completing course work) while being taught how to solve problems and to overcome obstacles. The staff teach study skills, notetaking skills, effective reading skills, time management, daily living skills, and how to balance studies and social life. In addition, the students are exposed to a wide variety of career opportunities. For further information, contact the Director of Program Coordination, Evansville Association for the Blind, P.O. Box 6445, Evansville, IN 47712, (812) 422-1181.

To reduce the high dropout rate among students with visual impairments, Monahan, Giddan, and Emener (1978) designed the "College Orientation Program for the Visually-Handicapped" to help students during the transition from high school to college. For nine weeks during the summer, students participate in an orientation program which includes O&M training; activities of daily living (personal hygiene, grooming, eating skills, self-care activities); communication skills (braille, mathematical aids, listening skills); overview of degree programs offered by the local colleges (Florida State University); physical fitness; and seminars on student services, library services, and institutional policies and procedures. Students in the program meet with other students with visual impairments and take part in general peer counseling programs. The program was helpful in assisting students to become successfully integrated into the sighted community and to overcome feelings of isolation and rejection.

Woodward (1992) reported on the Center for Independent Living of North Florida and its success in enabling students with severe physical disabilities to graduate, find work, and live independently in the community. Students typically stay for two to three years at the Center, though some reside longer while in graduate school. By being located in an apartment complex inhabited primarily by other college students, students with disabilities are provided a normalizing experience. Services provided include housing, transportation, attendant care, case management, and independent living skills training. During the past five years, 85% of the students graduated and obtained self-supporting employment.

Tech Prep is a program designed to provide technically-oriented knowledge and skills to high school students with disabilities. The program emphasizes proficiency in math, science, communications, and technologies during the last two years of high school and the following two years of college. The goal of Tech Prep is for students to receive an associate degree or certification in a specific career field (National Information Center for Children and Youth with Disabilities, 1991b).



Brown and Brown (no date) designed a program to equalize college educational opportunities for women who are disabled. Subject areas include awareness issues, law, health services, counseling, residence life, and career services. Teaching materials contain practical suggestions for skits, discussion groups, reading materials, films, handouts, facts, and quotes.

The staff of the HEATH Resource Center (1988) featured examples of transition programs offering services in training and employment, living arrangements, and levels of support. These various transition programs assist individuals in moving from high school to college, vocational training, competitive employment, continuing education, and adult services.

### **Transition Resources**

The HEATH Resource Center is the national clearinghouse on postsecondary education for individuals with disabilities. The Center identifies and describes educational and training opportunities, promotes accommodations which enable full participation by people with disabilities in regular and specialized college programs, and recommends strategies which encourage participation in the least restrictive and most productive environment possible for each person. A free newsletter published three times a year highlights campus programs, provides information about new or pending legislation, and offers reviews of new publications and other media products. Resource papers, monographs, guides, and directories focus on disability-related issues in postsecondary education programs. The *Resource directory: 1993-1994* (HEATH, 1993b) contains lists of organizations providing postsecondary education services for people with disabilities. Telephone numbers, addresses, and specific books, directories, magazines, and other publications are highlighted. HEATH staff can be reached at (800) 544-3284 or One Dupont Circle, Suite 800, Washington, DC 20036.

The Association on Higher Education and Disability (AHEAD; formerly known as AHSSPPE, Association on Handicapped Student Service Programs in Postsecondary Education) is a national, nonprofit organization which promotes the full participation of people with disabilities in college life. AHEAD sponsors workshops and conferences and publishes resource papers, guides, and directories. The AHEAD office can be reached at (614) 488-4972 or P.O. Box 21192, Columbus, OH 43221.

Baker and Cocchi (1987) listed services and products for people with visual impairments in the following categories: general and independent living, instructional access, maps, mobility, transportation, legal resources, low vision resources, scholarships and financial aid, adaptive computer equipment, adaptation of math and science equipment, and audio resources.

The National Federation of the Blind (1981) published a guide for young people who are visually impaired beginning their postsecondary education and job careers (*Postsecondary education and career development: A resource guide for the*

*blind, visually impaired, and physically handicapped*). Section 504 of the Rehabilitation Act is quoted in its entirety followed by specific examples of implementation. The book addressed issues of admissions and recruitment, treatment of students, academic adjustments, housing, financial and employment assistance, nonacademic services, career choices, school selection, use of available services, use of rehabilitation services, and use of library services. Later sections of the book emphasized writing resumes, going to interviews, getting a job, and working toward promotions.

Gibbs (1990) authored a book entitled *Campus daze* which informally described the experiences that freshmen encounter during the transition from high school to college. This book includes advice from older students, quotations, common and funny experiences that are to be expected or prepared for, useful anecdotes, and advice to parents and students. This book is useful for informing entering freshmen about social, academic, and emotional aspects of college life. While the book is directed toward nondisabled students, students with visual impairments will also gain insight about campus life.

Although *Transition tracks* (American Foundation for the Blind, 1990) was designed to be applicable mainly to Georgia students, the strategies and many of the contacts and references to literature are useful for any high school student with a visual impairment, parent, teacher, or counselor. The resource manual describes programs and strategies designed to benefit students in transition. Included are information on high school programs; the rehabilitation process; career exploration; summer enrichment programs; and programs offered by colleges, technical schools, and public and private training programs. Also included in the manual is information on identification cards; the Supplemental Security Income (SSI) program; Free Matter Mailing Privileges; educational financing; general information and assistance; parent organizations; counseling; diagnostic and evaluation services; respite care programs; miscellaneous services; and sources for books, tapes, independent living aids, and technology. The concluding section of the manual describes opportunities for independent living (including civil rights and the responsibility to register to vote), housing, transportation, dog guides, membership organizations, recreation and leisure activities, and other community services.

## Research Learning Forum

### Introduction

A Research Learning Forum focusing on transition from high school to college was held in Tampa, Florida in February, 1992. The Forum was sponsored by the Rehabilitation Research and Training Center on Blindness and Low Vision as part of a research project. Researchers, rehabilitation professionals, and consumers were invited to take part in two days of presentations and discussions. Experts from around the country presented information on transition from the perspective of rehabilitation agency administrators, college student service providers, administrators of college transition programs, and researchers.

### Information that is Helpful to Know Before Attending College

Nineteen participants and seven presenters met in small groups to discuss a series of questions. They were first asked "What do you think is helpful for a college applicant with a visual impairment to know before going to college?" In the discussion that followed, the group decided that college applicants should have appropriate academic preparation, social maturity, self-knowledge, independent living skills, adequate resources, and knowledge of entrance requirements.

*Appropriate academic preparation.* Specifically, college applicants with visual impairments should possess basic academic skills similar to other students, reading skills (regular print, large print, or braille including Nemeth code), organizational and time management skills, effective written and verbal communication skills, and test-taking skills using adaptive techniques. When studying, students should have mastered pacing, acquisition strategies, storage and data organization, memory retention and recall, notetaking, research, and participation in study groups. Students need continuing objective feedback to develop realistic attitudes about study outcomes. Most students will discover that some degree of computer and word processing skills are invaluable. Besides these objective skills, students should also have developed areas of academic interests leading toward a vocational objective.

*Social maturity.* In the area of socialization, students should have acquired a level of confidence in approaching unfamiliar people, making friends, listening to others, and interacting with other people, especially roommates. Besides academic pursuits, college life contains its share of extracurricular activities. Recreational skills and interests outside the classroom allow students with visual impairments to participate in informal settings with their sighted peers. Students will benefit from acquiring stress management and self-protection skills and knowing someone else who will be attending the same college.

*Self-knowledge.* Self-knowledge includes understanding the functional limitations of the disability, medical management, and knowledge of needed accommodations. Students who have learned how to self-advocate will ask

questions, recognize when assistance is needed, and understand what to do when in trouble. The conference participants noted that college is a very competitive environment, and administrators and faculty are not always helpful to individual students. Therefore, students must realize that only they are responsible for themselves, their behaviors, and their outcomes. All students, including those with visual impairments, must deal with loneliness and separation from family and friends. Transition to college can be easier when students assume realistic expectations about college life.

*Independent living skills.* A great deal of time and effort goes into teaching students about independent living skills. These skills include clothing care and repairs, food preparation, bathroom and toiletry skills, grooming skills, eating skills (cafeteria lines, restaurant), sex education, and budgeting and money management. Students require all these skills in order to succeed in college. Students should have developed good O&M skills to assist them in becoming familiar with a new campus, dormitories, and community. Students should explore the availability of transportation systems. Various residential options should be explored to discover the best fit between what the student needs and prefers, and what is available on campus. Students may want to explore employment opportunities both on- and off-campus.

*Adequate resources.* Students should discuss their needs with personnel from disabled student services including the availability of notetakers, readers, accessible computer laboratories and equipment, adaptive devices, and low vision aids. Students should know how to order accessible books and materials from Recordings for the Blind or other sources of books and materials. Students may wish to explore the availability of funds and devices from vocational rehabilitation. The conference participants were in strong agreement that students should avail themselves of all opportunities to attend college preparation courses or summer programs, especially those offered through the office of disabled student services.

*Knowledge of entrance requirements.* Regardless of the presence of a disability, all students must meet entrance requirements. Occasionally, these requirements may be waived for students with disabilities, but more than likely, the requirements will be the same or only slightly altered. Therefore, students should become knowledgeable about college requirements and registration processes. Students will want to explore the costs of attending a particular college and the opportunities for financial aid, including support from vocational rehabilitation. Students should also become familiar with scheduled events during the semester, such as periods when students meet with advisors, when payment of fees is due, when courses can be dropped or added, and holiday schedules.

### **Guidelines and/or Qualifications Required by Rehabilitation Agencies**

The conference participants were next asked, "What guidelines and/or qualifications do rehabilitation agencies have for providing funding for college students?" In the discussion that followed, it quickly became evident that there



were general requirements for all vocational rehabilitation agencies and specific requirements that varied by state. The participants agreed that all state vocational rehabilitation agencies generally require the following: (1) Meet all eligibility requirements for receiving vocational rehabilitation including being legally blind, (2) choose a vocational goal or objective leading to employment, (3) develop a signed Individualized Written Rehabilitation Plan, (4) demonstrate acceptable high school grades (generally, 2.0 grade point average), (5) enroll as a full-time college student (generally, 12 hours per semester), (6) apply for financial aid, and (7) be accepted into a college (individual schools may require ACT or SAT scores and high school graduation or its equivalent). Regardless of the student's qualifications, financial support through vocational rehabilitation is limited to the availability of funds.

Specific state vocational rehabilitation programs may require the student to attend a college preparatory program or to write an essay on vocational goals before being accepted for vocational rehabilitation funding. Other states require that students demonstrate the ability to enter an academic environment. In those states, students must demonstrate communication skills, notetaking skills, travel skills, activities of daily living skills, and a positive psychological aptitude. Other states provide funds only for teacher preparation programs or related fields that emphasize working with people with visual impairments. Many states require that their students exhibit financial need, make an application to vocational rehabilitation a year or more in advance, or declare a major area of study prior to entering the program. Students may be required to complete their undergraduate work within five years. Funds may only apply to undergraduate school. Students will probably have to maintain on-going communication with the vocational rehabilitation counselor.

The most important point in this part of the discussion is that state vocational rehabilitation programs vary significantly from one another. Students planning to attend college must carefully consult with their vocational rehabilitation counselors about specific guidelines and requirements. In addition, students and counselors must adhere to deadlines set by their particular agency.

### **Important Areas to Include in the Research**

In an attempt to include items in the questionnaires that would answer the research questions and provide relevant information to service providers, conference participants were asked, "What is important for us [project researchers] to know about a college student in this study?" The conference participants suggested five general areas of inquiry: (a) demographics, (b) educational background, (c) family and personal characteristics, (d) relationship to agencies, and (e) college activities.

*Demographics.* The participants wanted to know about the visual disability including age at onset, progression of visual disability, disease etiology, current visual acuity, and acuity in preschool years. In addition, they wanted to know



about the presence of other disabilities, gender, age, employment history (including part-time and volunteer work), socioeconomic status, educational level of family members, marital status, presence of children, and routine mode of travel.

*Educational background.* The participants believed that high school experiences were important in determining the ease of transition from high school to college. Consequently, they wanted to know about high school grades, intelligence quotient scores (I.Q.), and the type of high school attended (mainstreamed, residential, private, etc.). Method of accessing print materials was a particular concern. Specifically, they wanted to know about the reading medium commonly used, access to textbooks and class materials, and ease in obtaining accessible texts and materials. The researchers were encouraged to inquire about special instructional adaptations for different subject areas, use of adaptive equipment, contacts and resources for special services, adequacy of special services, and test-taking adaptations. Participants wanted to know about the type of assistance received from tutors and readers.

*Family and personal characteristics.* The transition from high school to college can be facilitated by the level and quality of family support. Family support includes emotional as well as financial support. The participants believed that living away from home for any length of time eased the transition from home to college. They wanted information about a student's psychological adjustment, basic personality trait (whether passive or assertive), general level of independence, interaction with friends and family members, and sources of assistance when in trouble.

*Relationship to agencies.* In relationship to vocational rehabilitation, the participants wanted to know the student's age at referral to an agency and problems encountered in maintaining contact with a vocational rehabilitation counselor. They wanted the researchers to explore the differences, if any, between agency sponsored and nonagency sponsored college students. The participants were concerned about financing a college education, including support received from vocational rehabilitation, SSI, and other benefit programs.

*College activities.* Conference participants wanted to know if students had participated in any type of college preparation program and the program's effectiveness in preparing students for campus life. The participants wanted to know about students' general vocational goals, as well as specific courses of study, majors, and grades. They distinguished between required course loads and what the students perceived as an optimum course load. Extracurricular activities were of particular interest to the participants. They requested information about students' interests and hobbies, participation in organizations and consumer oriented groups (including American Council of the Blind and National Federation of the Blind), and social interactions with sighted and visually impaired peers. The choice of a place of residence was another concern of the participants (e.g., on-campus, off-campus, dormitories, private apartments).

## Preparation for Attending College

The final question asked of conference participants was "How do you [college student] prepare for college?" General discussion centered around academic preparation, financial preparation, social preparation, and the actual entry into college.

*Academic preparation.* It was suggested that students complete an interest inventory, attend college preparation programs, and participate in activities which might help them choose an area of study and prepare for campus life. Because many vocational rehabilitation programs require a decision about a specific area of study before receipt of funds, students may have to choose a major study area even before entry into college. If possible, students may wish to take a college course while still in high school. The participants believed that high schools and college preparation programs should provide instructions in developing listening and study skills as well as the more common term paper classes. Because of the long delays in obtaining accessible textbooks, students must order textbooks early and must be enrolled in college courses early. Students with visual impairments together with college teachers and administrators should discuss the availability of large print, braille (including Nemeth code), or audiotaped materials; readers; adapted equipment and supplies; and low vision textbooks. The participants stressed the importance of knowing how to operate a computer and being familiar with word processing programs before entering college.

*Financial preparation.* Students wishing to pursue college should arrange for financial support at the earliest possible date. Many agencies and grant programs require applications to be made a year or more in advance of actual attendance. All males eighteen years of age, including those who are totally blind, must register for the draft in order to qualify for governmental financial aid. Students should develop a budget in partnership with parents, vocational rehabilitation counselors, college counselors, and other relevant people.

*Social preparation.* The conference participants stressed the importance of a variety of socialization experiences in preparing students for college and later for work. These socialization experiences could include summer camps, vacations, and interactions with social groups and friends. Parental involvement was also perceived as an important element. Early prevocational experiences can help a student decide what types of work they would prefer and those that should be avoided. In terms of school programming, conference participants made two suggestions. High school students could "shadow" a college student with a visual impairment in order to experience a typical day from the perspective of a student with a visual impairment. College students with visual impairments could also be invited back to high school to talk with other students. Finally, the participants stressed that students must become organized because it is students themselves who are ultimately responsible for their outcomes.

*Entry into college.* Students must complete all necessary paperwork (admissions, housing, financial aid, etc.) before deadlines. Students may have to

undergo a medical examination. Upon admission to college, students should become familiar with the campus, sidewalk systems, cafeteria and food services, public and private transportation systems, recreational facilities and activities, and housing. Students will need to locate the office of disabled student services and inquire about any assistance that this office can provide. Students may wish to arrange for O&M instruction on campus while classes are in session. Attending college orientation programs as early as possible can provide much needed information for incoming freshmen and still allow time to make necessary adjustments.

### **Epilogue**

Ideas generated by the Research Learning Forum were later used in writing the data collection instruments for this research project. The participants continued to assist the researchers by suggesting respondents, by reviewing questionnaires, and by serving as a general advisory board throughout the span of the research project.

## Methodology

### Questions

Three questions guided the research process: (1) What do students with visual impairments need to know to attend college? (2) What are the specific steps that students with visual impairments need to take in order to successfully attend college? (3) Do skills, knowledge, and steps differ from the perspective of students versus program administrators? In order to answer these and other germane questions, the following procedures were followed.

### Procedures

An extensive literature review was undertaken to identify materials relevant to students entering college. Since very little literature could be located which pertained to students with visual impairments, information on nondisabled students and students with other disabilities was included. Highlights of the literature review were presented in earlier sections of this monograph ("Making Plans to Attend College" and "Classroom Accommodations"). The literature review and the Research Learning Forum helped guide the researchers over the course of the study.

Student telephone interviews and administrative mail surveys were constructed from the literature review and from the discussions generated during the Research Learning Forum. A report obtained from the Illinois State Board of Education (no date) was particularly helpful. Early drafts of these instruments were shared with participants in the Research Learning Forum and then revised based on their comments. The instruments were then field tested and revised once again. Copies of the two instruments are contained in Appendix A and B.

Colleges serving students with visual impairments were identified through AHSSPPE (now known as AHEAD), the National Clearinghouse on Post Secondary Education for Individual with Disabilities, Liscio's (1986) *A guide to colleges for visually impaired students*, Thomas and Thomas's (1986) *Directory of college facilities and services for the disabled*, and Tweed and Tweed's (1989) *Colleges that enable: A guide to support services offered to physically disabled students on 40 U.S. campuses*. Research Learning Forum participants were asked to identify colleges and students that might be interested in participating in the survey. Two national consumer organizations with student chapters agreed to make the surveys available to their student members. A concerted effort was made to include students and colleges from all fifty states. While this goal was not met, the respondents do represent a wide geographical distribution across the United States.

In order to adhere to confidentiality requirements surrounding the release of students' names, college administrators of disabled student services, two national consumer organizations, and other contacts were asked to share an



introductory letter with students with visual impairments who were college juniors or seniors or who were upperclassmen in community (two-year) colleges. Business reply envelopes were included with each letter to make it as easy as possible for the students to respond. A copy of the introductory letter is contained in Appendix C. The researchers did not know the identity of the students until they responded by writing or by calling to say that they agreed to be interviewed.

A response rate for the student surveys could not be calculated because of confidentiality requirements which protected the students' identities. A large proportion of the letters were inadvertently sent to incomplete or incorrect addresses. In addition, the lists maintained by the national organizations contained names of undergraduates, graduate students, recent college graduates, and people interested in the issues of college students. Nothing in these lists distinguished the upperclassmen from all the other groups. Therefore, many of the letters were delivered to people that did not fit the selection criteria (currently enrolled upperclassmen). Not knowing the response rate is unfortunate from a research perspective, however, because of the difficulty in identifying college students with visual impairments, this situation was unavoidable.

Telephone interviews were conducted with 102 students over the course of two semesters. One trained interviewer conducted all the interviews which lent great stability to the interviewing process. General domains in the questionnaire included demographics; educational history; use of computers, specialized equipment, and adaptive equipment; resources; college preparation; problems adjusting to college; work history; and O&M skills. Respondents were not paid for their participation, however, results of the project were shared with anyone who was interested.

At the same time that students were being identified and interviewed, another phase of the data collection was being conducted. A sample of college administrators of disabled student services were contacted by mail and asked to complete a short form. Business reply envelopes were also used with administrators in the belief that their use would increase the response rate. The sample was obtained from the two publications by Liscio (1986) and Thomas and Thomas (1986). Out of a total of 117 institutions, responses were received from 65, a 56% response rate. This was achieved with one follow-up reminder by mail. Administrators were encouraged to send materials describing their support programs for students with disabilities. General domains in the mail survey included services provided by their colleges, institutional expectations, requirements for admission, and effects of the newly legislated Americans with Disabilities Act.

Data from the two survey instruments were coded and entered into a personal computer for analysis. Initial runs were completed allowing the researchers to check and to clean the data.



### **Selection of Upperclassmen to Represent "Successful" Students**

The literature review indicated that college students with disabilities demonstrate a high drop-out rate and experience an inordinate amount of difficulties while in college (Brown, 1990; Butler-Nalin et al, 1989). Students with visual impairments only have slightly lower drop-out rates when compared to other groups with disabilities. Most students (disabled or nondisabled) who leave college do so in the first one or two years. The researchers decided to limit the interviews to those students who stayed in college beyond the critical first or second year. Something about these students or their background set them apart from their peers who had dropped out earlier. The researchers recorded the experiences of these "successful" students and obtained background information about them in the hope that it would assist other students in preparing for college.

### **Anticipated Results and Applications**

Results from this project will be used to construct questionnaires designed to collect information about new employees with visual impairments and their employers. Information from the two projects will be used to develop brochures and other materials describing the skills, knowledge, and steps necessary for students with visual impairments to successfully make the transition from high school to college and from college to the work place. Identification of the knowledge and skills needed for successful transition will result in more successful transition experiences for young people with visual impairments, will increase the effectiveness of colleges and their disabled student services, and will lead to the generation of new directions for research.

## Results of Student Survey

Questionnaire responses were analyzed using frequency analysis, correlation analysis, and a limited use of factor analysis. A separate qualitative study of students' responses to two open-ended questions is reported in a separate section entitled "Qualitative Analysis" (page 79). Selected quotations from student respondents are included in this section to highlight particular results. A complete listing of student comments is contained in Appendix D and E.

### Demographics

Out of 102 student respondents, 54% were female and 46% were male. There was a greater concentration of white students (86%) than nonwhite (14%). The average age of the respondents at the time of the interview was 25 years with a range from 19 to 50 years. While the American norm is to go straight from high school to college, many of these respondents delayed entry into college until they had worked for a few years.

An extremely large number of students either lost their vision at birth or at a very young age. The average age when vision loss occurred was five years. Sixty percent had no vision at birth. An additional 6% lost their vision by age four (in general, before entering school) while another 24% experienced vision loss by age 17 (in general, before graduating from high school). The most frequently reported primary eye diagnoses were diabetic retinopathy (26%) and congenital anomalies (21%) followed by disorders of the optic nerve (8%), glaucoma (8%), neoplasms (7%), and cataracts (5%). Only 17 people (16%) reported any additional visual problems besides their primary diagnosis.

Seventeen percent of the students were totally blind in both eyes. An additional 23% could only count fingers, see hand motion, or perceive light. The remaining students' visual acuity ranged from 20/20 to 20/600 (all respondents were legally blind). The average acuity level was 20/1023.

A majority of students had no additional major health problems affecting their work or daily activities (74%). When present, the three most commonly reported health problems were diabetes, hearing loss, and arthritis.

### Educational Environments

While in elementary school, 8% attended a separate school for the blind and 12% attended a separate high school (Figure 1). The majority of students attended elementary and high schools with their sighted peers.

Twenty-three percent of the

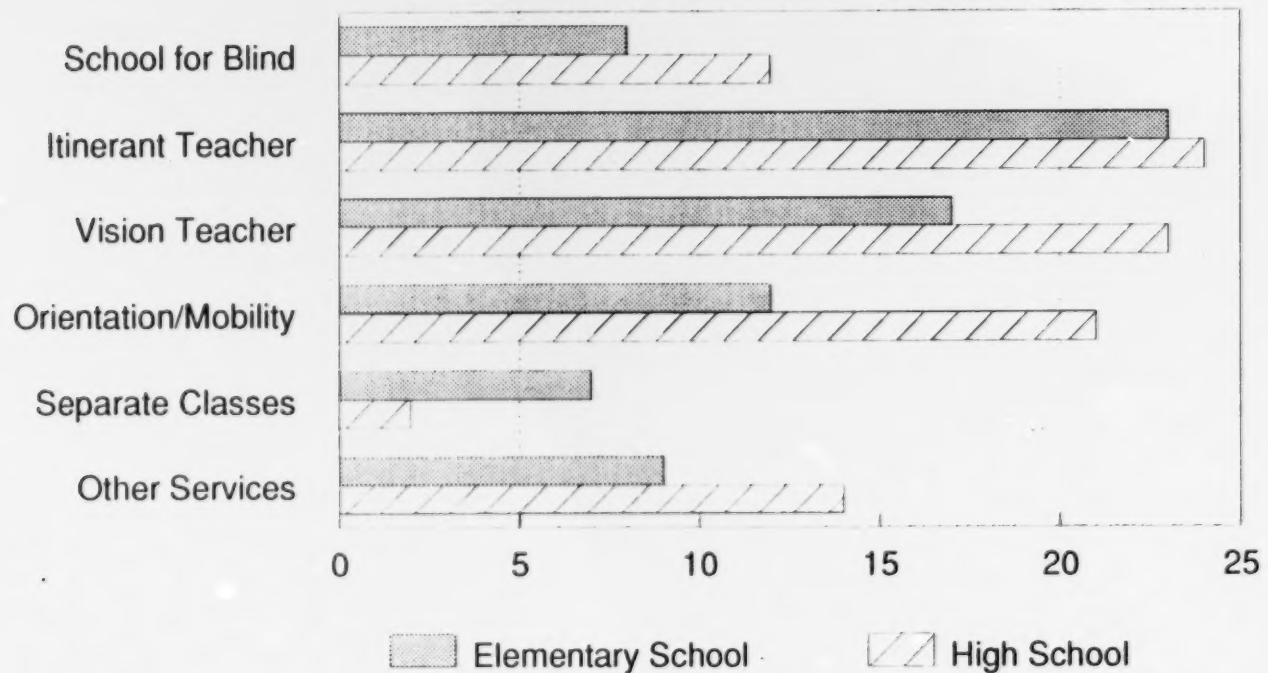
elementary students met with an itinerant or traveling teacher, 17% worked with

---

**Have incredibly good mobility skills because you will need to do things on your own.**

---

# Figure 1: Educational Environments % of Students Receiving Services



a vision resource teacher in the regular classroom, 12% received O&M instructions from the school system, 7% attended separate classes for students with visual impairments, and 9% received other services. During high school, 24% met with an itinerant or traveling teacher, 23% were assigned a vision resource teacher, 21% received O&M instructions, only 2% were placed in separate classes, and 14% received other services. In the category of "other services," students received special equipment, large print textbooks, or extra time to complete tasks. The majority of students did not receive any special services for their visual impairments.

The overall grade point average while in high school was 3.2 (with 4 representing an "A"). No one in the study reported a grade point average less than a "D".

### **College Demographics**

These same students also maintained a 3.2 overall grade point average while in college (no one reported less than a "C" average). This high average is quite remarkable. While conclusions cannot absolutely be certain, it would appear that students with visual impairments who stay in college past the first year or two, perform very well in college.

The student respondents averaged 17.6 hours per week in studies outside the classroom during the first semester in college. Seventy-four percent selected a major area of study before entering college (often required by vocational rehabilitation programs). While 58% of the students have never changed their major area of study, the remaining 42% officially

---

**If you have a good community college nearby, go! It makes a great transition. You do not have to choose a major [area of study] right away. You can work in the basics first.**

---

---

**Make the best grades that you can. Take as many advanced courses as you can, especially math, because that is what is the hardest in college.**

---

---

**Study groups with other students [are] very helpful. Use them.**

**Use your afternoon study hours wisely.**

---

changed their minds an average of two times (unofficial changes were not recorded). The leading college majors were education and psychology (17% each), social work (7%), business (6%), and English, communication, sociology, health, or engineering (5% each).

Twenty-two percent classified themselves as sophomores or second year

junior college students, 33% as juniors, and 45% as seniors. During their first semester in college, they enrolled in an average of 12.3 course hours (ranged from 3 to 19 hours). They have been enrolled an average of 8.1 semesters since beginning college (ranged from 3 to 18 semesters).

---

**If you can get through the first year, you've got it made.**

---

## **Reading Methods**

The students were asked about the methods they used to "keep up with classroom reading assignments." Fifty-nine percent relied on readers to access written materials. Only eight percent of the students used braille textbooks, but braille class materials were read by 17% and Nemeth coded braille materials by 16%. Large print textbooks were read by 17% of the students and 38% enlarged regular print materials by using a CCTV, Visualtek, or other device. Taped textbooks were used by 75% of the students and taped class materials by 64%. In addition, 24% of the students described "other" methods they used, such as computers, color overlays, raised line drawings, and optical character recognition devices.

---

**[It is] very important to learn braille at [an] early age. [It] helps out in a lot of ways, like when you have to give a speech.**

---

---

**Check out your instructors to make sure they're cooperative, for example, allowing tape recorders [in class].**

---

Less than half of the students (37%) had used a computer on a regular basis before entering college, but 73% now used a computer on a regular basis for their college classwork. Of the students not currently using a computer, 89% would use one if a computer was available. It appears that computers will be of increasing importance to students with visual impairments.

## **Work History**

Students were asked about their previous work experience including household chores, volunteer work, and paid employment. The majority of students had participated in the work force in some way by the time they were in college. During high school, 88% of the students spent an average of 7.4 hours per week performing household chores. During this same time period, slightly more than half of the students (55%) averaged 7.9 hours per week in volunteer activities. While still in high school, slightly less than half of the students (45%) worked 17.2



hours per week for pay during their after school hours. During the summertime, 64% of the high school students averaged 35.1 hours per week in paid employment. Twenty-nine percent of the students returned to college after first working awhile (averaged 42.5 hours per week). Fifty-six percent of the students averaged 22.8 hours per week of paid employment while attending college.

---

**If you are really not ready to go [to college], then take a year off.**

---

### **Extracurricular Activities**

Students were asked about their extracurricular activities during college. Fifty-four percent participated in social groups or organizations, but only 12% were members of sororities or fraternities (Figure 2). Forty-four percent took part in scholastic or academic groups or organizations and 27% in career or job related organizations. About a third (34%) participated in religious activities while in college. Students were less active in political groups (17%) or athletic groups (15%). Students were marginally active (17%) with "other" types of special interest groups, such as music, the environment, or international students. One-third of the students did not engage in any type of extracurricular activity while in college. The remaining 67% took part in extracurricular activities an average of 6.4 hours per week. These student respondents were not loners, but were active in one or another type of organizational activity. No questions were asked about informal activities.

---

**[You] need to get involved with an organization. [It] doesn't matter which [one], but [you] need to make friends and get involved.**

**When [you are] asked to join academic groups, you should, even if it costs [money]. [You] will need it on your resume.**

---

### **Mobility**

The most frequently used form of transportation on campus was walking (used by 75% of the students). The other forms of

---

**Look for a college close to town so you can walk and not have to depend on rides.**

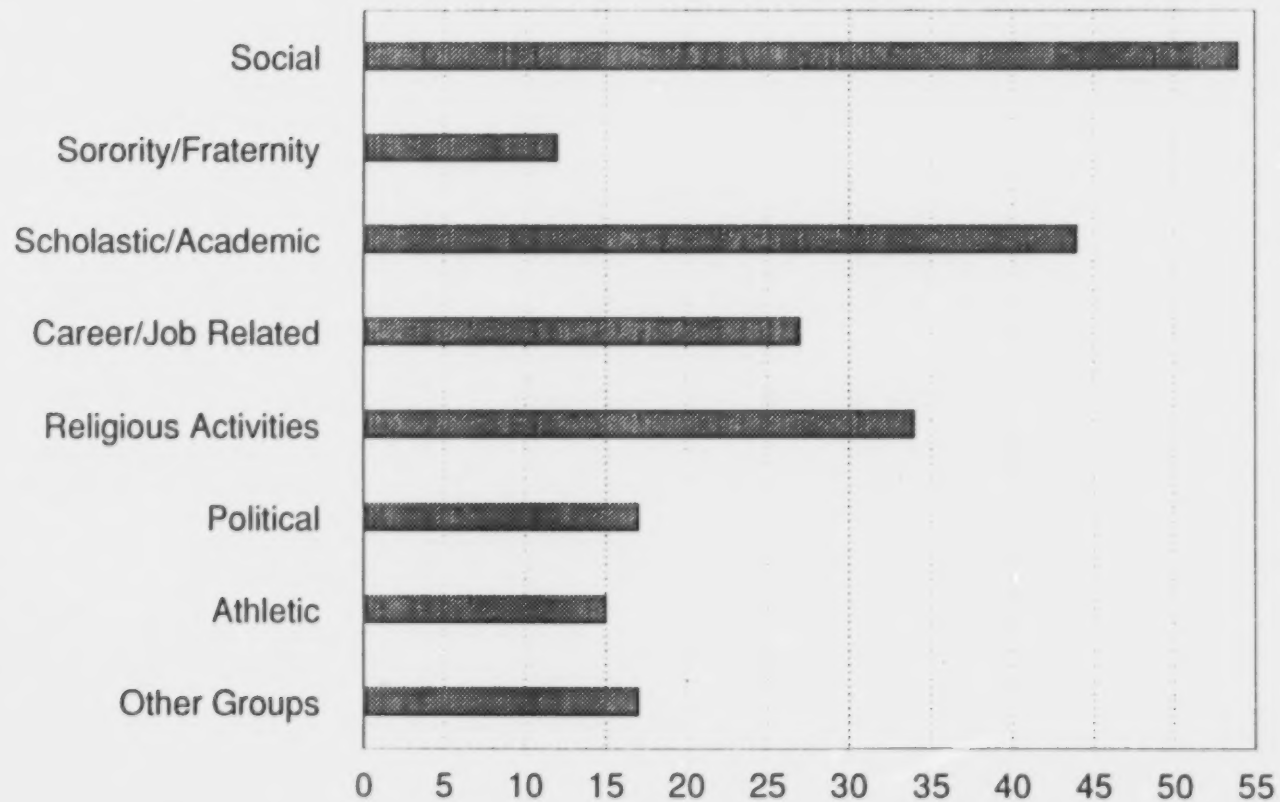
**Choose a college that is in a town with some kind of public transportation.**

---

transportation were bus or tram (9%), automobile (6%), bicycle (5%), and handilifts

# Figure 2: Extracurricular Activities

% of Students Taking Part in Activities



(2%). When going off campus, students relied more heavily on being driven in an automobile (45%), a bus or tram (28%), or walking (16%). Less frequently used modes of transportation (off campus) were bicycles (5%), taxis (2%), or handilifts (2%). Four students were wheelchair users.

Slightly less than half of the students used a white cane (48%). Forty-four percent relied on sighted guides at times and 14% worked with dog guides.

---

**[I wish I had known that my]  
dog gets bored during lectures.  
He'll moan!**

---

### **Future Plans**

When asked about their immediate plans for the future, 58% indicated their desire to finish college. An additional 2% wanted to continue in senior college and 20% in graduate school. Twenty percent planned to work.

### **Services and Equipment**

The student respondents were asked a series of questions about whether or not they used services or equipment provided by colleges. For reporting purposes, the 17 items were grouped into five general categories: (a) general services, (b) special housing, (c) specialized services, (d) equipment, and (e) alternative arrangements (Figure 3).

The category of general services included services offered by a college health department, a college counseling office, and a college preparatory program, as well as transportation and tutors. Within this category, the most heavily used services were college health services (used by 55% of the students), tutors (49%), and college counseling services (46%). Less frequently utilized college-provided services were transportation (30%) and college preparatory programs (22%). Since 75% of the students used walking as their primary form of mobility on campus, there would, by necessity, be fewer utilizing college-provided transportation services.

The second category of services consisted of one item, special housing arrangements. Only 11% of the students availed themselves of this service. Students with visual impairments may be able to integrate with the general student body and consequently, have little need for special arrangements for housing.

---

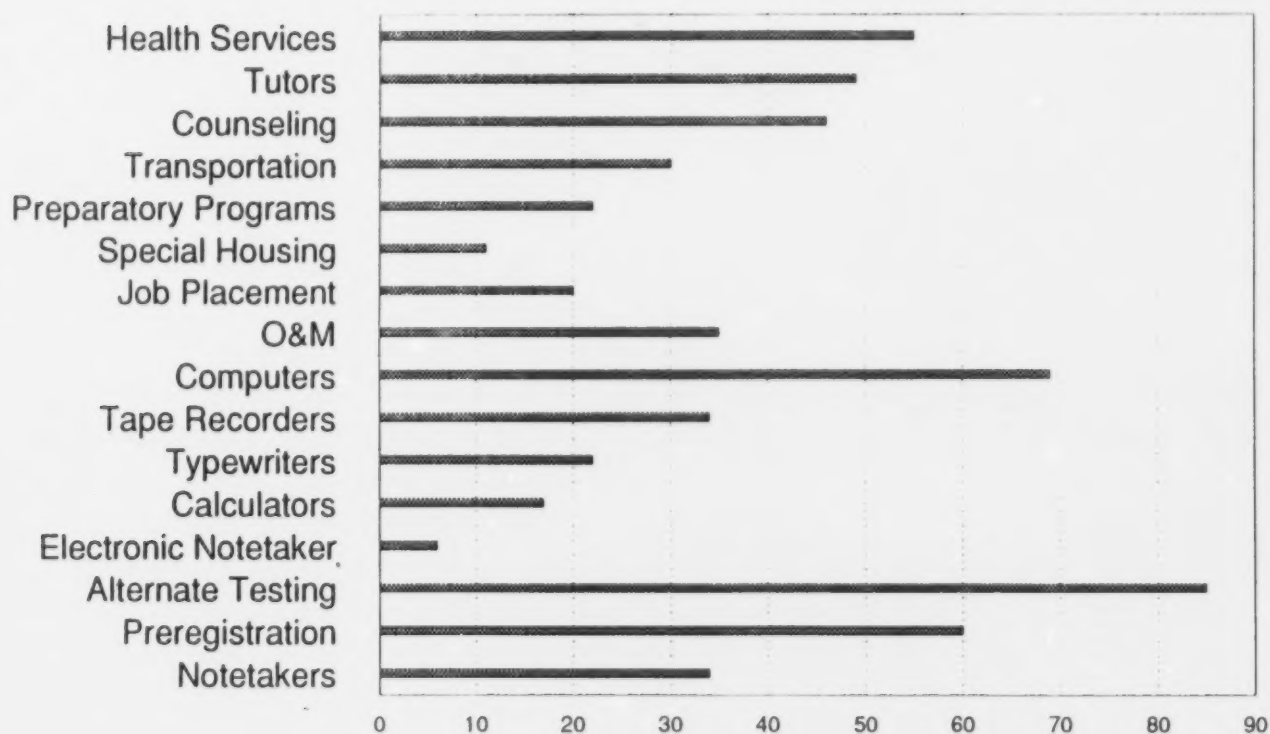
**Generally, large universities  
have better facilities for students  
with disabilities.**

**Check out support services at  
the school to see what they will  
offer you. A smaller school is  
better than a larger one.**

---

# Figure 3: Services and Equipment

## Percent of Students Using Services or Equipment Provided by Colleges



Job placement and O&M instruction on campus were the two items listed in the specialized services category. At the time of the study, only 20% of the students used college job placement services. As the student body approaches graduation, their use of this service should increase. About a third (35%) received campus O&M instructions. It is not known whether or not these instructions occurred on empty campuses or when other students and crowds were present.

---

**Make sure to research different campuses thoroughly, including topography.**

---

Colleges often provided equipment to their visually impaired students. Included in this category are a few of the more common types of equipment. Computers were used by the greatest number of students (69%). Tape recorders were used by about a third of the students (34%). Less frequently used equipment were typewriters (22%), calculators (17%), and electronic notetaker devices (6%). A few students volunteered that their colleges provided a CCTV and a large print photocopier for their needs. It was not ascertained in this study what equipment was provided by vocational rehabilitation.

---

**Don't be embarrassed to use instruments [in class] like [a] tape recorder.**

---

Colleges frequently made alternative arrangements for their visually impaired students to take part in regular class activities. These tended to be heavily used by the students and were probably the least expensive and the least disruptive to campus life. Eighty-five percent of the students relied upon alternate test arrangements while 60% took part in special preregistration activities. Thirty-four percent worked with notetakers provided by the college. One student had a special assistant for courses with laboratory requirements.

A different way of examining use of services is to arrange the list in descending order according to the use of that service by students (Table 1). A majority of students used alternative test arrangements (86%), computers (69%), special preregistration for classes (60%), and college health services (55%). Following these services in decreasing use were tutors (49%), college counseling services (46%), campus O&M instruction (35%), tape recorders or notetakers (34% each), transportation (30%), and college preparatory programs or typewriters (22% each). Services used by twenty percent or fewer students were job placement services (20%), calculators (17%), special housing arrangements (11%), and electronic notetakers (6%).



**Table 1. Services Used By Students in College (in descending order) (N=102)**

| Services                            | % of "Yes" Responses |
|-------------------------------------|----------------------|
| Alternate test arrangements         | 85.3                 |
| Computers                           | 68.6                 |
| Special preregistration for classes | 59.8                 |
| College health services             | 54.9                 |
| Tutors                              | 49.0                 |
| College counseling services         | 46.1                 |
| Campus O&M instruction              | 35.3                 |
| Tape recorders                      | 34.3                 |
| Notetakers                          | 34.3                 |
| Transportation                      | 30.4                 |
| College preparatory program         | 21.6                 |
| Typewriters                         | 21.6                 |
| Job placement                       | 19.6                 |
| Calculators                         | 16.7                 |
| Special housing arrangements        | 10.8                 |
| Electronic notetakers               | 5.9                  |

## Received Help from Others

When making any type of major change in their lives, people often turn to others for assistance, support, or advice. The students in this study were provided a list of people and were asked how helpful each one was to them when making the transition from high school to college (Figure 4). Their answers could range from 0 ("not helpful") to 4 ("very helpful"). The students' families were the most helpful (average = 3.4). Sighted friends were also helpful in the transition (average = 2.9), but friends with visual impairments were not as helpful (average = 2.0). College representatives which included people in the office of disabled student services averaged 2.7 in "helpfulness." Less helpful were O&M instructors (average = 2.3), vocational rehabilitation counselors (2.3), rehabilitation professionals including counselors or teachers (2.1), and high school teachers or counselors (1.8). The majority of students (88%) had received some sort of assistance from a vocational rehabilitation agency.

## College Preparation

Students were asked how important a series of items were in their college preparation. Their responses could range from "not important" represented by "0," all the way to "very important" represented by "4." For reporting purposes, the 16 items were grouped into five categories: (a) reading and O&M issues, (b) advance preparation, (c) housing and finances, (d) working with organizations, and (e) classes (Figure 5).

Dealing with issues of reading was a very important part of preparing for college. The students believed that it was important to order textbooks early (average = 3.1) and to find and schedule readers (2.8). Also of importance to these students was locating transportation (average = 3.2) and receiving campus O&M instruction (3.2). As already reported, only about a third of the students (35%) actually received O&M instructions on campus and in general, the students found their O&M instructors as only average in helpfulness (average = 2.3 with a range

---

**Talk to a vocational rehabilitation counselor to find schools that offer what you need. Talk to a blind student at the college you're looking at to get advice.**

**Learn how to openly convey what your needs as a blind student are (and aren't) so people can appropriately help you.**

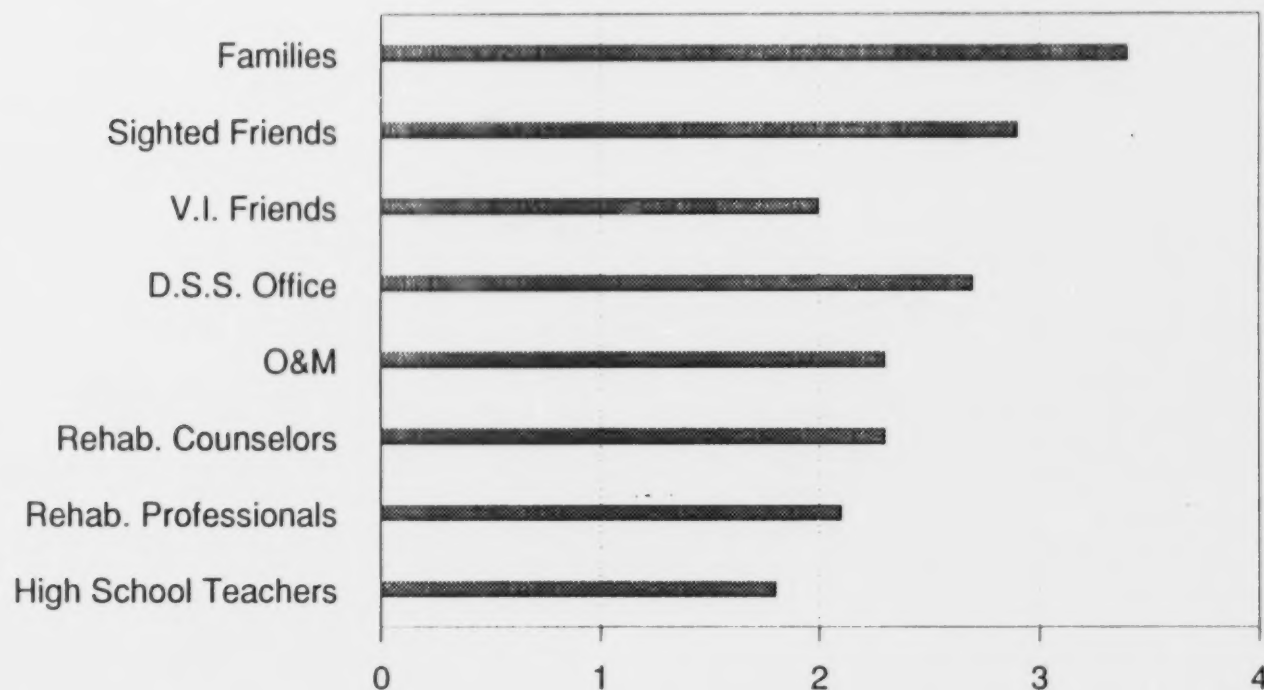
**Don't hesitate to ask for help. You have [the] right to ask for what you really need.**

**If you need special assistance, speak up for it, because people aren't going to do it for you.**

---

# Figure 4: Received Help from Others

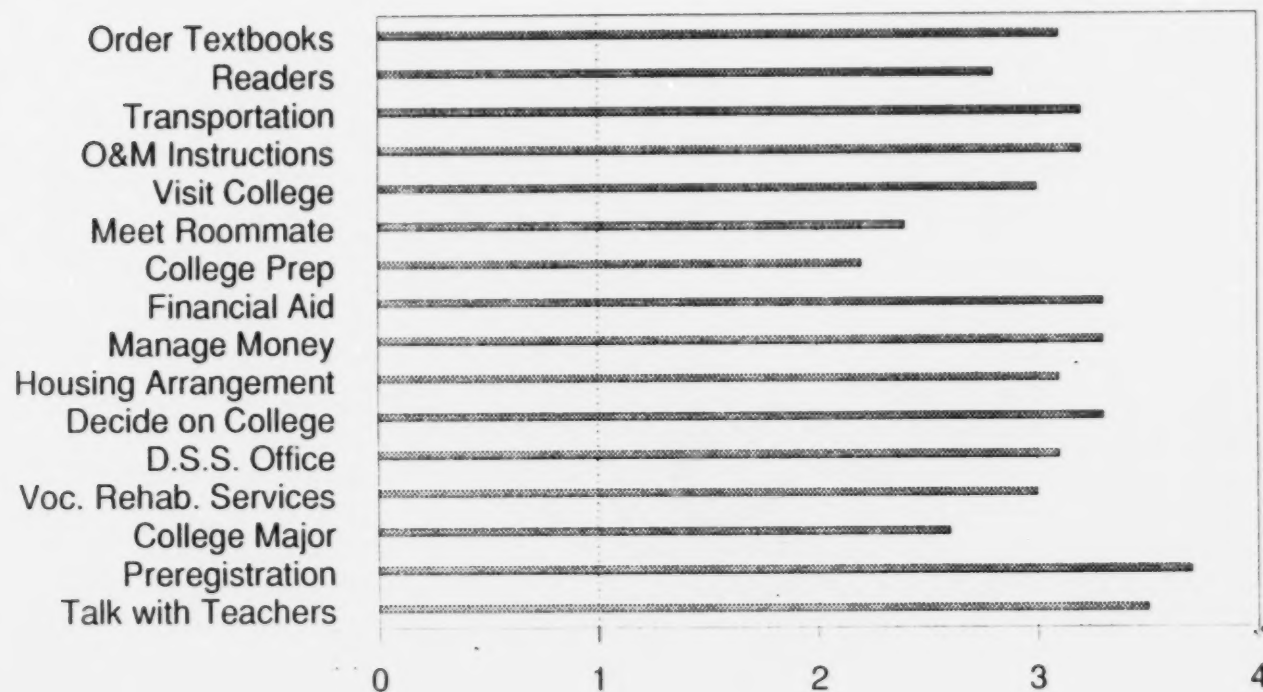
Average of Assistance, Support, or Advice Received from Other People



0 = Not helpful  
4 = Very helpful

# Figure 5: College Preparation

## Average of Importance in Preparing for College



0 = Not Important  
4 = Very Important

from 0 to 4).

Items grouped under "advance preparation" were arrangements that all students (sighted and nonsighted) might make before attending college. Within this group, the students believed that it was most important to visit the college during orientation (average = 3.0). Of less importance was meeting or talking with a roommate before the move (average = 2.4) or attending a college preparatory program (2.2). Only 22% of the students actually attended a college preparatory program.

Making housing and financial arrangements was important to these students. The students gave an average rating of 3.3 (the highest possible score was 4.0) to "applying for

---

**Take canned food if you live in the dorm.**

---

When preparing for college, students must work with a number of offices and organizations. Under this category were grouped the following: deciding on a college to attend (average = 3.3 in importance), communicating with the disabled student services office about the visual impairment (3.1), working with vocational rehabilitation services (3.0), and choosing a college major area of study (2.6). As noted before, deciding on a college major before entering an academic program is often a prerequisite for participation in a vocational rehabilitation program.

The last preparation category was class activities which contained two items. Preregistering for classes was rated an average of 3.7 in importance followed by

---

**Go look at [the] college in advance. Visit and see what services are offered. See if you can get around. Get to know your teachers.**

**Take the time to check out the college and it's disabled student services. Check out it's track record (how many visually impaired [people are] on staff, if they [services] are free, [and] how they [services] are available).**

**Check out different kinds of colleges. Consider all of your needs, not just [your] disability-related ones.**

---

financial aid early" and "learning how to manage your money." Making housing arrangements was scored an average of 3.1.

---

**[I wish I had known that] some of the professors were more approachable and aren't so intimidating. Go see them the first week to talk to them [about your visual impairment]. Don't be shy speaking to instructors to make needed arrangements (like boardwork, etc.).**

---



communicating with teachers about their visual impairment (average = 3.5). Sixty percent of the students had actually used special services offered by the colleges to preregister for their classes.

By rearranging the items so that the most important item appears first, followed in descending order by less important items, a different view of the data is obtained (Table 2). Items ranked as "very important" included preregistering for classes (76%), followed by communicating with teachers (69%), ordering textbooks early (63%), applying for financial aid (61%), learning how to manage money or locating transportation (60% each), making housing arrangements (58%), receiving campus O&M instruction (55%), deciding on a college to attend (54%), and communicating with the office of disabled student services (50%). Less than fifty percent of the students ranked the following items as "very important:" (a) finding and scheduling readers or visiting college during orientation (45% each), (b) working with vocational rehabilitation services (44%), (c) meeting or talking with a roommate (30%), (d) attending a college preparatory program (29%), and (e) deciding on a college major area of study (27%).

### **Problems While Attending College**

Students were presented a list of 25 problems and asked if they had experienced any of them while in college. On the average, students experienced eight problems each. Their answers were grouped into five categories: (a) classroom support; (b) housing and finances; (c) social activities; (d) course work; and (e) reading, O&M, and time management (Figure 6).

---

**[I wish I had known] that there wasn't a pool of readers, tutors, notetakers that could be dipped into. College did not provide [these services]. As course material got more difficult, the time readers provided stayed constant; [the time] did not increase as the difficulties [of classwork] did.**

---

---

**Adopt the attitude that you can do anything that you want to do. Barriers that you run into should be considered as challenges. [It is] your responsibility to make it easier for the next visually impaired [person] that comes along.**

---

In the category of classroom support, 37% of the students had difficulty taking exams with time limits. Thirty-five percent had difficulty obtaining special services needed for their disability. Another 34% experienced problems when dealing with teachers and professors. Finding and scheduling readers was a problem for 28% of the students and 23% found it difficult to register for classes. As reported earlier, 59% of the students used readers to access written materials and 60% took advantage of

**Table 2. Perceived Importance by Students of Selected Factors in Preparing for College (in descending order according to "very important") (N=102)**

| Factors                        | Not<br>Important<br>% | Slightly<br>Important<br>% | Important<br>% | Quite<br>Important<br>% | Very<br>Important<br>% | $\bar{X}$<br>(SD) |
|--------------------------------|-----------------------|----------------------------|----------------|-------------------------|------------------------|-------------------|
| Preregister for classes        | 1.0                   | 1.0                        | 5.0            | 16.8                    | 76.2                   | 3.66<br>(.71)     |
| Communicate with teachers      | 2.0                   | 2.9                        | 7.8            | 18.6                    | 68.6                   | 3.49<br>(.91)     |
| Order textbooks early          | 8.2                   | 9.3                        | 5.2            | 14.4                    | 62.9                   | 3.14<br>(1.34)    |
| Apply for financial aid        | 8.2                   | 1.0                        | 6.1            | 23.5                    | 61.2                   | 3.29<br>(1.18)    |
| Learn how to manage money      | 3.0                   | 2.0                        | 14.0           | 21.0                    | 60.0                   | 3.33<br>(1.00)    |
| Locate transportation          | 6.9                   | 3.9                        | 6.9            | 22.5                    | 59.8                   | 3.25<br>(1.18)    |
| Make housing arrangements      | 10.3                  | 1.0                        | 10.3           | 20.6                    | 57.7                   | 3.14<br>(1.28)    |
| Receive campus O&M instruction | 8.1                   | 3.0                        | 8.1            | 26.3                    | 54.5                   | 3.16<br>(1.21)    |

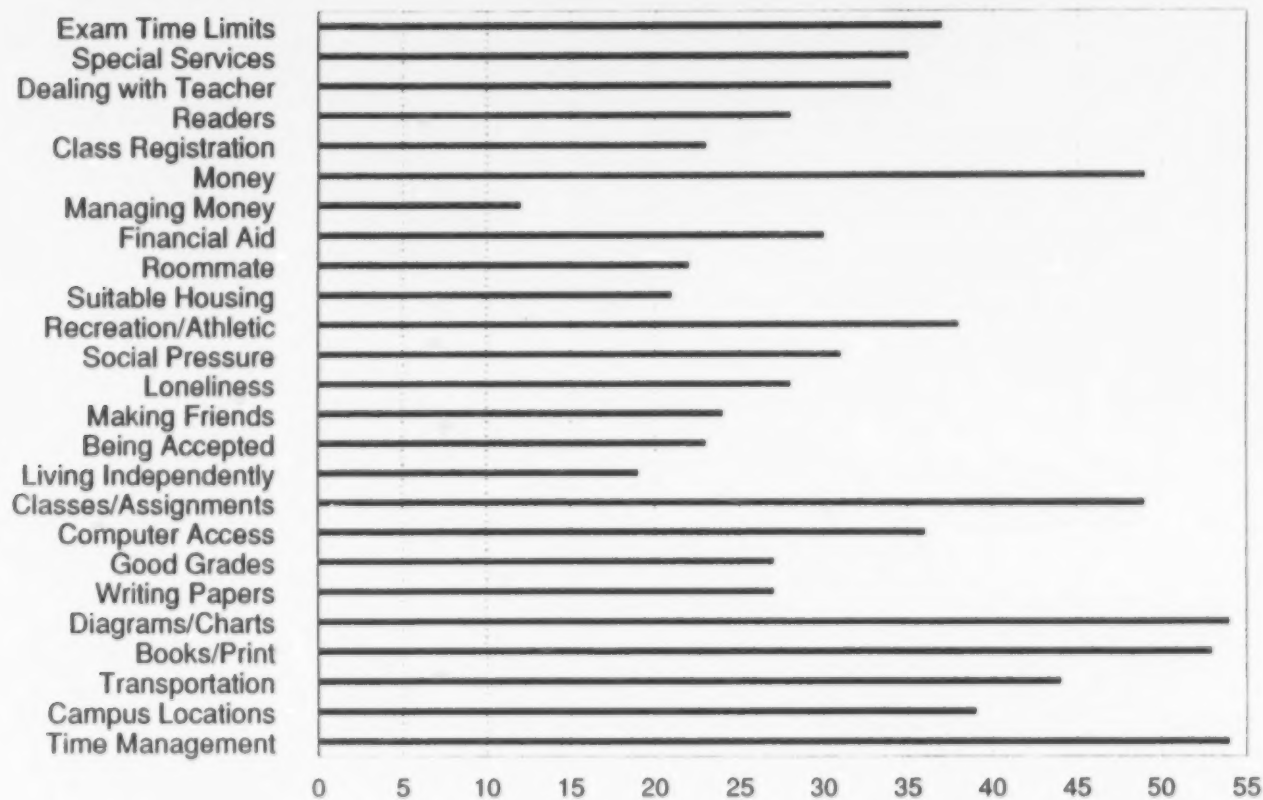
(continued)

**Table 2. Perceived Importance of Selected Factors in Preparing for College (in descending order according to "very important") (N=102) (continued)**

| Factors                                             | Not<br>Important<br>% | Slightly<br>Important<br>% | Important<br>% | Quite<br>Important<br>% | Very<br>Important<br>% | $\bar{X}$<br>(SD) |
|-----------------------------------------------------|-----------------------|----------------------------|----------------|-------------------------|------------------------|-------------------|
| Decide on college to attend                         | 4.9                   | 1.0                        | 8.8            | 31.4                    | 53.9                   | 3.28<br>(1.02)    |
| Communicate with disabled<br>student service office | 5.9                   | 5.9                        | 12.9           | 25.7                    | 49.5                   | 3.07<br>(1.19)    |
| Find and schedule readers                           | 15.5                  | 3.1                        | 11.3           | 24.7                    | 45.4                   | 2.81<br>(1.44)    |
| Visit college during orientation                    | 9.0                   | 6.0                        | 9.0            | 31.0                    | 45.0                   | 2.97<br>(1.27)    |
| Work with vocational<br>rehabilitation services     | 5.9                   | 3.0                        | 15.8           | 31.7                    | 43.6                   | 3.04<br>(1.12)    |
| Meet or talk with roommate                          | 19.4                  | 5.4                        | 21.5           | 23.7                    | 30.1                   | 2.40<br>(1.46)    |
| Attend college preparatory program                  | 21.6                  | 10.3                       | 25.8           | 13.4                    | 28.9                   | 2.18<br>(1.50)    |
| Decide college major                                | 7.9                   | 6.9                        | 27.7           | 30.7                    | 26.7                   | 2.61<br>(1.18)    |

# Figure 6: Problems While at College

## % of Students Reporting Problems



special preregistration for classes.

Almost half of the students (49%) identified "having enough money" as a problem, however, only 12% had difficulty managing their money. About a third (30%) experienced problems receiving financial aid. Twenty-two percent had difficulty getting along with a roommate and 21% experienced trouble locating suitable housing.

In the category of social activities, 38% of the students experienced difficulty participating in recreational or athletic activities. In an earlier section it was reported that only 15% participated in athletic groups or organizations. Thirty-one percent identified problems with social pressures, 28% with loneliness, 24% with making friends, 23% in being accepted, and 19% in living independently.

Half of the students (49%) had problems with difficult classes or

---

### **Do not skip class.**

---

assignments. Thirty-six percent had problems gaining access to computers. Twenty-seven percent had difficulties in both making good grades and writing papers. Previously, it was reported that tutors were used by 49% of the students and 69% had access to computers supplied by the colleges.

Students identified problems in the areas of reading, O&M, and time management. Over half of the students (54%) had problems

accessing diagrams and charts, while almost an equal number (53%) had problems

---

**Check out your dorm room to find out where you'll put everything. Lots of people have lots of visually impaired equipment. [You] kind of need [a] private room.**

---

---

**Don't worry about the social aspect of college. The worst thing you can do is not mix, mingle, [or] speak out with other people. Don't keep to yourself. But don't just be social; you might flunk out your first semester. Balance academic and social [activities].**

**[It] is different when [you] are living with students who can see, rather than just going to school with them (like high school). Sighted students are afraid [they] will have to "take care of you." [You] might hinder their fun time, so [they] may be scared and seem unfriendly at first.**

**If you keep a good attitude and don't mind answering questions about your blindness, [you] will have a better time; people will be more willing to help you and be your friends. Have a good disposition. Be happy. [It] will pay off.**

---



accessing books and written materials. Forty-four percent identified problems with transportation and 39% had difficulty in finding their way around campus. College-provided transportation was used by only 30% of the students (reported in an earlier section) and college-provided O&M instructions were used by only 35% of the students. Over half of the students (54%) had problems with time management.

Table 3 displays the same information arranged in descending order according to the percentage of students experiencing that problem. Time management or access to diagrams and charts were the two problems experienced by the greatest percentage of students (54% each). These were followed in descending order by accessing books and written materials (53%), having enough money or difficult classes or assignments (49% each), and transportation (44%). The next problem areas were only separated by one percentage point each: finding ways around campus (39%), participating in recreational or athletic activities (38%), taking exams with time limits (37%), accessing computers (36%), obtaining special services for their disability (35%), and dealing with teachers and professors (34%). The problems experienced by less than a third of the students were social pressures (31%), receiving financial aid (30%), loneliness or finding and scheduling readers (28% each), making good grades or writing papers (27% each), making friends (24%), being accepted (23%), getting along with a roommate or registering for classes (22% each), locating suitable housing (21%), living independently (19%), and managing money (12%).

### Reading Medium Correlated with Problem Areas

The researchers believed that there might be a relationship between the method of reading and certain problems experienced by students while attending college. Therefore, the students' method of reading was correlated with problems they experienced while attending college. A Chi-square test was used to determine if there was a statistically significant difference between students' observed behaviors and their expected behaviors (based on the null hypothesis that there would be no difference between the two behaviors). Results showed that students who used readers also had more problems than expected accessing books and written materials ( $\chi^2 = 8.51$ , .004 level of significance), accessing diagrams and charts ( $\chi^2 = 12.18$ , .000 level of significance), and finding and scheduling readers ( $\chi^2 = 9.58$ , .002 level of significance).

---

**Before school starts, familiarize yourself with [the] layout of campus so [you] won't have [the] added stress of worrying about that when school starts.**

**You have a lot of time, but [you] find [that] it goes away quickly. Learn how to manage your time.**

---

**Table 3. Problems Encountered by Students in College (in descending order) (N=102)**

| Problems                                           | % of "Yes" Responses |
|----------------------------------------------------|----------------------|
| Time management                                    | 53.9                 |
| Access to diagrams and charts                      | 53.9                 |
| Access to books and written materials              | 52.9                 |
| Having enough money                                | 49.0                 |
| Difficult classes or assignments                   | 49.0                 |
| Transportation                                     | 44.1                 |
| Finding ways around campus                         | 39.2                 |
| Participating in recreation or athletic activities | 38.2                 |
| Taking exams with time limits                      | 37.3                 |
| Access to computers                                | 36.3                 |
| Obtaining special services for disability          | 35.3                 |
| Dealing with teachers and professors               | 34.3                 |
| Social pressures                                   | 31.4                 |
| Receiving financial aid                            | 29.7                 |
| Loneliness                                         | 28.4                 |
| Finding and scheduling readers                     | 28.4                 |
| Making good grades                                 | 26.5                 |
| Writing papers                                     | 26.5                 |
| Making friends                                     | 23.5                 |
| Being accepted                                     | 22.8                 |
| Getting along with a roommate                      | 22.0                 |
| Registration for classes                           | 21.5                 |
| Locating suitable housing                          | 20.6                 |
| Living independently                               | 18.6                 |
| Money management                                   | 11.8                 |

Braille textbook readers had more difficulties than expected accessing books and written materials ( $\chi^2 = 4.16$ , .041 level of significance). They had no unexpected difficulty accessing diagrams and charts or finding and scheduling readers.

Nemeth braille readers had more problems than expected accessing books and written materials ( $\chi^2 = 3.70$ , .054 level of significance) and accessing diagrams and charts ( $\chi^2 = 5.70$ , .017 level of significance).

Students who used large print textbooks had no unexpected problems accessing any classroom materials identified in the survey, while students using enlargement devices had fewer problems than expected accessing diagrams and charts ( $\chi^2 = 8.26$ , .004 level of significance).

Students who used taped textbooks had more problems than expected accessing books and written materials ( $\chi^2 = 4.70$ , .030 level of significance) and accessing diagrams and charts ( $\chi^2 = 5.23$ , .022 level of significance).

All the students except those using large print, had more problems than expected accessing books and written materials. These materials are the mainstay of college classroom activities.

---

**It is hard to get foreign languages major materials in braille.**

---

---

**During [the] summer between high school and college, if [you] have to switch, say, from braille to books, [you] should practice with tapes before college because retaining the information from tapes is hard.**

---

### **Computer Usage Correlated with Problem Areas**

Students who used computers for college classwork on a regular basis had fewer problems than expected accessing computer equipment ( $\chi^2 = 5.00$ , .025 level of significance). Nonusers who would use a computer if one was available, were slightly more likely than expected to have problems accessing computers. However, this difference was not statistically significant.

### **High School Grades Correlated with Problem Areas**

Overall high school grades were correlated with problems relating to receipt of financial aid (some financial aid is tied to academic performance) and to college classroom performance. High school grades had no statistically significant effect on problems receiving financial aid. There was also no difference in problems with teachers and professors, with difficult classes or assignments, with taking exams with time limits, with writing papers, or with making good grades in college.

The lack of statistically significant differences due to high school grades

may be because students are placed in particular college classes based on their high school academic performance. For example, "C" students might be placed in general mathematics college courses (where they experience little difficulty with the demands of the course) rather than more difficult college calculus courses.

### **College Grades Correlated with Problem Areas**

Overall college grades were correlated with the same set of problem areas relating to finances and college classroom performance. There were no statistically significant difference for problems receiving financial aid, dealing with teachers and professors, or with writing papers. College grades did vary from what was expected for problems with difficult classes or assignments ( $\chi^2 = 13.78$ , .001 level of significance), with taking exams with time limits ( $\chi^2 = 6.53$ , .038 level of significance), and with making good grades ( $\chi^2 = 13.07$ , .001 level of significance). "B" and "C" students had more difficulty than expected with difficult classes or assignments and with making good grades ("A" students had fewer problems than expected for both areas). "A" and "B" students had fewer problems than expected taking time limited exams, however, "C" students had more problems than expected.

### **Work History Correlated with Problem Areas**

Working for pay before entering college was correlated with problems dealing with managing money and time, with receiving financial aid, and with having enough money. There were no statistically significant difference in the expected and observed behaviors for these problem areas. Working for pay had no statistically significant relationship with any financial difficulties.

People who worked for pay while attending college did have more problems than expected receiving financial aid ( $\chi^2 = 7.78$ , .005 level of significance). Employed college students were probably working out of economic necessity rather than as a way to gain skills or to satisfy a class requirement.

### **Participation in Extracurricular Activities Correlated with Problem Areas**

The seven possible extracurricular activities were correlated with problems associated with relationships with others and with self. The specific problem areas were: (a) having enough money, (b) time management, (c) social pressures,

(d) making friends, (e) getting along with a roommate, (f) being accepted, (g) loneliness, (h) participation in recreational or athletic activities, and (i)

---

**There will be plenty of time for social life. Do not try to squeeze it all in at first.**

---

transportation. Out of all of these correlations, only one registered as statistically significant. Those students who participated in "social groups or organizations" had a greater than expected problem with time management ( $\chi^2 = 4.53$ , .033 level of significance).



## **Results of Administrative Survey**

### **Time Spent on Special Needs**

Sixty-six college administrators responded to the mail survey. All but three people were full-time college employees. Seventy-five percent worked full-time as special needs coordinators; 25% worked part-time in this position. On average, administrators spent 72% of their time coordinating the needs of students with disabilities. Thirty-six percent of the administrators spent all of their time on these responsibilities. The majority of respondents (73%) were classified as administrators by their colleges. The remaining group were support staff (13%), faculty (8%), or "other" (6%).

### **Admission Standards**

The majority of the colleges represented in this study (57%) used "regular" admission standards for students (set standards or requirements that students must meet in order to be accepted into the program). Thirty-eight percent of the colleges had "open" enrollment (anyone applying to the program was admitted). Only three colleges reported a "special" enrollment policy. As an example of a special admission policy, one respondent reported that her college provided "conditional acceptance for high-potential, low-achieving, high-risk students."

Eighty-three percent of the colleges had no special admission policies for students with visual impairments, while 17% gave special considerations for visually impaired students. When colleges were divided into "regular," "open," or "special" based on general admission policies, "regular admissions colleges" were the most likely to have a special admission policy for students with visual impairments (21%). Only 9% of the "open admissions colleges" reported a special policy, while no "special admissions colleges" reported a special policy for students with visual impairments.

"Special admission policy" had many different meanings depending upon the college being surveyed. One college annually awarded a certain number of "special admission slots for students with disabilities." Most colleges reporting a special admissions policy for students with disabilities allowed students to voluntarily submit information about their disability to be considered in the admissions process. Administrative respondents worked closely with admissions departments during this review process. Some colleges allowed certain requirements (for example, courses or achievement tests) to be substituted or waived when a disability was present. One director took the lead in advocating "modified admission standards for students [with disabilities] if they are qualified and demonstrate academic potential."

## Effect of the Americans with Disabilities Act

Respondents were asked about the effect of the Americans with Disabilities Act (ADA) on their college. Some administrators believed that the ADA would have no effect upon their program, while others simply did not know. Many of the colleges were undergoing a review of their programs and accessibility, due directly to the passage of this act.

The majority of administrators made reference to Section 504 guidelines and indicated that the ADA will expand the job that they were already doing in making their programs accessible to students with disabilities. The following quotations were taken directly from the survey instrument.

"The ADA expands the concept of reasonable accommodation to all campus departments and programs for disabled students, faculty, staff, and visitors."

"Other offices, in addition to Disabled Student Services, will have to be more accessible; i.e., department pamphlets and class schedules will need to be available in large print/braille."

Administrators anticipated changes in architectural accessibility and physical access, signage, and transportation. Some colleges planned to provide telecommunications for people with hearing impairments, alternative formats for major college publications, adaptive and assistive technology, and improved access to computer hardware and software. More than anything else, they expected that the enactment of the ADA would result in an increased awareness of disability issues among students, faculty, and staff.

"Hopefully [there will be] a change in overall climate with the heightened awareness (even though [the college] has been covered under Section 504)."

[The effect of the ADA will be] "more discussion between able and disabled peoples."

A few administrators anticipated serving more students with disabilities due to the passage of the ADA. They expected students to request more services including the chance to attend college in the first place.

"ADA is having a direct impact - students and prospective students are empowered and are requesting more services than pre-ADA."

"With the Disability Act, there will probably be more students coming to our school."

## Services Provided by Colleges, Now and in the Future

Administrative respondents were presented a list of 26 services and asked if their colleges offered these services, whether they were used by their students during the past year, source of payment, and interest in providing these services if not currently offered. The only service offered by all colleges was alternative testing arrangements, such as extended time or readers (Table 4). The other services offered by a large percentage of the colleges were readers (97%); tutors (97%); adaptive course work, such as extended time (96%); adapted computer equipment (94%); and adaptive equipment (89%). This same group of services tended to be the ones that colleges that were not offering the service now, were interested in providing in the future (adapted computer equipment: three additional colleges; adaptive equipment: two colleges; and readers: one college). No additional colleges planned to offer tutors or adaptive coursework.

Eighty-three percent of the colleges provided cassette recorders and notetakers to their students with visual impairments; 32%, O&M assistance; 81%, recorded textbooks; 79%, special preregistration; 77%, extra counseling services; 76%, in-service training for professors and staff members; 71%, special orientation; and 70%, club, organization, or support groups. Within this group of services, seven additional colleges were interested in providing in-service training for their professors and staff members in the future; seven colleges wanted to offer special orientations to their students; five colleges, extra counseling services; four colleges, club, organization, or support groups; three colleges, recorded textbooks; two colleges, notetakers; and two colleges, O&M assistance. Only one college each, expressed an interest in offering cassette recorders or providing special preregistration.

A majority of the colleges provided special housing arrangements (68%), typewriters (67%), diagnostic testing for academic placement purposes (60%), specialized resource rooms (57%), calculators (56%), and peer or assistant counselors (54%). Seven additional colleges were interested in organizing peer or assistant counselors and six in providing a specialized resource room to their students with visual impairments. Five colleges wanted to offer calculators; three colleges, typewriters; three colleges, diagnostic testing for academic placement purposes; and one college, special housing arrangements.

Forty-two percent of the colleges provided transportation to their students with visual impairments; 41% offered large print books; 33%, braille books; 26%, college preparatory programs; and 21%, electronic notetakers. Twelve colleges wanted to provide electronic notetakers in the future; ten colleges, large print books; and nine colleges, braille books. Five colleges each wanted to offer transportation or college preparatory programs.

**Table 4. Services Provided by Colleges, Use of Services Last Year, and Interest in Providing Services in the Future (N=66)**

| Service                                                         | % of Colleges<br>Providing Services<br>Now<br>(Number) | % Colleges<br>Wanting to<br>Provide Services<br>in the Future <sup>a</sup><br>(Number) | % of Colleges<br>Using Services<br>Last Year <sup>b</sup><br>(Number) |
|-----------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Alternative testing<br>arrangements (extended<br>time, readers) | 100.0<br>(66)                                          | ---                                                                                    | 100.0<br>(61)                                                         |
| Readers                                                         | 97.0<br>(64)                                           | 50.0<br>(1)                                                                            | 98.2<br>(56)                                                          |
| Tutors                                                          | 97.0<br>(64)                                           | ---                                                                                    | 100.0<br>(55)                                                         |
| Adaptive coursework<br>(extended time)                          | 95.5<br>(63)                                           | ---                                                                                    | 100.0<br>(58)                                                         |
| Adapted computer<br>equipment                                   | 93.8<br>(61)                                           | 75.0<br>(3)                                                                            | 100.0<br>(56)                                                         |
| Adaptive equipment                                              | 89.2<br>(58)                                           | 28.6<br>(2)                                                                            | 98.0<br>(50)                                                          |
| Cassette recorders                                              | 83.3<br>(55)                                           | 9.1<br>(1)                                                                             | 100.0<br>(49)                                                         |
| Notetakers                                                      | 83.3<br>(55)                                           | 18.2<br>(2)                                                                            | 94.0<br>(47)                                                          |
| Orientation and mobility<br>assistance                          | 81.5<br>(53)                                           | 16.7<br>(2)                                                                            | 100.0<br>(44)                                                         |
| Recorded textbooks                                              | 81.3<br>(52)                                           | 25.0<br>(3)                                                                            | 100.0<br>(47)                                                         |
| Special preregistration                                         | 78.8<br>(52)                                           | 7.1<br>(1)                                                                             | 97.8<br>(45)                                                          |
| Extra counseling services                                       | 76.6<br>(49)                                           | 33.3<br>(5)                                                                            | 97.7<br>(43)                                                          |

(continued)

**Table 4. Services Provided by Colleges, Use of Services Last Year, and Interest in Providing Services in the Future (N=66) (continued)**

| Service                                                           | % of Colleges<br>Providing Services<br>Now<br>(Number) | % Colleges<br>Wanting to<br>Provide Services<br>in the Future <sup>a</sup><br>(Number) | % of Colleges<br>Using Services<br>Last Year <sup>b</sup><br>(Number) |
|-------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| In-service training for professors and staff members <sup>c</sup> | 75.8<br>(50)                                           | 43.8<br>(7)                                                                            | 93.9<br>(31)                                                          |
| Special orientation                                               | 71.2<br>(47)                                           | 36.8<br>(7)                                                                            | 95.5<br>(42)                                                          |
| Club, organization, or support group                              | 69.7<br>(46)                                           | 20.0<br>(4)                                                                            | 82.5<br>(33)                                                          |
| Special housing arrangements                                      | 67.7<br>(44)                                           | 4.8<br>(1)                                                                             | 97.4<br>(37)                                                          |
| Typewriters                                                       | 66.7<br>(42)                                           | 14.3<br>(3)                                                                            | 94.3<br>(33)                                                          |
| Diagnostic testing for academic placement purposes                | 60.0<br>(39)                                           | 11.5<br>(3)                                                                            | 100.0<br>(32)                                                         |
| Specialized resource room                                         | 56.9<br>(37)                                           | 21.4<br>(6)                                                                            | 97.1<br>(34)                                                          |
| Calculators                                                       | 55.6<br>(35)                                           | 17.9<br>(5)                                                                            | 96.9<br>(31)                                                          |
| Peer or assistant counselors                                      | 54.0<br>(34)                                           | 24.1<br>(7)                                                                            | 96.6<br>(29)                                                          |
| Transportation                                                    | 42.4<br>(28)                                           | 13.2<br>(5)                                                                            | 100.0<br>(25)                                                         |

(continued)



**Table 4. Services Provided by Colleges, Use of Services Last Year, and Interest in Providing Services in the Future (N=66) (continued)**

| Service                        | % of Colleges<br>Providing Services<br>Now<br>(Number) | % Colleges<br>Wanting to<br>Provide Services<br>in the Future <sup>a</sup><br>(Number) | % of Colleges<br>Using Services<br>Last Year <sup>b</sup><br>(Number) |
|--------------------------------|--------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Large print books              | 40.9<br>(27)                                           | 25.6<br>(10)                                                                           | 100.0<br>(22)                                                         |
| Braille books                  | 32.8<br>(21)                                           | 20.1<br>(9)                                                                            | 93.3<br>(14)                                                          |
| College preparatory<br>program | 25.8<br>(16)                                           | 10.9<br>(5)                                                                            | 85.7<br>(12)                                                          |
| Electronic notetakers          | 21.3<br>(13)                                           | 25.0<br>(12)                                                                           | 100.0<br>(13)                                                         |

<sup>a</sup>Percentage reported equals the number of schools interested in providing a service divided by the number of schools not offering the service now, excluding missing data.

<sup>b</sup>Percentage reported equals the number of schools reporting use of a service divided by the number of schools actually offering that service, excluding missing data.

<sup>c</sup>In-service training was a service provided to professors and staff members, but not to students, per se.

## **Students' Use of Services Provided by Colleges During the Last Year**

In general, if a college provided a service for students with visual impairments, that service was used by students during the last year (Table 4). All the responding colleges reported that alternative testing arrangements, tutors, adaptive coursework, adapted computer equipment, cassette recorders, O&M assistance, recorded textbooks, diagnostic testing for academic placement purposes, transportation, large print books, and electronic notetakers were used by their students during the last year. While still heavily used, clubs, organizations, or support groups had the lowest reported percentage of use (83%).

## **Source of Payment for Services Provided by Colleges**

When asked about the source of payment for the 26 listed services, the most common answer given was the college itself (Table 5). Other sources of funds were students, vocational rehabilitation, government funds, and "other" (Recordings for the Blind, volunteers, private donations, granting agencies, or a combination of sources).

Colleges were almost the entire source of funding for adaptive coursework (94%), alternative testing arrangements (93%), extra counseling services (93%), specialized resource room (93%), special preregistration (92%), in-service training for professors and staff members (92%), special orientation (92%), transportation (92%), and typewriters (91%). These services tended to be the ones already offered by colleges to the general student population and simply adapted to accommodate the needs of students with visual impairments.

Services paid by the largest percentage of students were college preparatory programs (29%), special housing arrangements (18%), and tutors (13%). Various government agencies were also a source of funds for college preparatory programs (14%) and tutors (7%). These services tended to be those that were not absolutely necessary for someone to receive in order to attend college.

The largest percentage of services paid by vocational rehabilitation were braille books (21%), O&M assistance (18%), and large print books (16%). O&M is commonly provided by rehabilitation agencies to their clients.

"Other" sources of funding contributed more heavily to electronic notetakers (38%), recorded textbooks (37%), readers (29%), notetakers (31%), cassette recorders (22%), braille books (21%), adaptive equipment (19%), calculators (19%), and adapted computer equipment (18%). Many of these services were one-time expenditures used repeatedly by successive groups of students with visual impairments.

## **Additional Services**

The administrative respondents were asked if they provided any additional services for their students with disabilities besides those listed in the

**Table 5. Source of Payment for Services Provided by Colleges (N=66)**

| Service                                                      | College      | Student     | Vocational<br>Rehabili-<br>tation | Govern-<br>ment | Other        | Service Not<br>Provided by<br>College |
|--------------------------------------------------------------|--------------|-------------|-----------------------------------|-----------------|--------------|---------------------------------------|
| Alternative testing arrangements<br>(extended time, readers) | 92.7<br>(51) | ---         | ---                               | ---             | 7.3<br>(4)   | ---                                   |
| Readers                                                      | 58.9<br>(33) | 1.8<br>(1)  | 7.1<br>(4)                        | 3.6<br>(2)      | 28.6<br>(16) | 3.4<br>(2)                            |
| Tutors                                                       | 61.1<br>(33) | 13.0<br>(7) | 1.9<br>(1)                        | 7.4<br>(4)      | 16.7<br>(9)  | 3.6<br>(2)                            |
| Adaptive coursework<br>(extended time)                       | 93.9<br>(46) | ---         | ---                               | 4.1<br>(2)      | 2.0<br>(1)   | 5.8<br>(3)                            |
| Adapted computer equipment                                   | 78.0<br>(39) | ---         | 2.0<br>(1)                        | 2.0<br>(1)      | 18.0<br>(9)  | 7.4<br>(4)                            |
| Adaptive equipment                                           | 72.3<br>(34) | 2.1<br>(1)  | 2.1<br>(1)                        | 4.3<br>(2)      | 19.1<br>(9)  | 13.0<br>(7)                           |
| Cassette recorders                                           | 67.4<br>(31) | 4.3<br>(2)  | 6.5<br>(3)                        | ---             | 21.7<br>(10) | 19.3<br>(11)                          |
| Notetakers                                                   | 64.4<br>(29) | 2.2<br>(1)  | ---                               | 2.2<br>(1)      | 31.1<br>(14) | 19.6<br>(11)                          |
| Orientation and mobility<br>assistance                       | 63.6<br>(28) | ---         | 18.2<br>(8)                       | 2.3<br>(1)      | 15.9<br>(7)  | 21.4<br>(12)                          |

(continued)

**Table 5. Source of Payment for Services Provided by Colleges (N=66) (continued)**

| Service                                                  | College      | Student     | Vocational<br>Rehabili-<br>tation | Govern-<br>ment | Other        | Service Not<br>Provided by<br>College |
|----------------------------------------------------------|--------------|-------------|-----------------------------------|-----------------|--------------|---------------------------------------|
| Recorded textbooks                                       | 53.5<br>(23) | 2.3<br>(1)  | 2.3<br>(1)                        | 4.7<br>(2)      | 37.2<br>(16) | 21.8<br>(12)                          |
| Special preregistration                                  | 92.1<br>(35) | ---         | ---                               | ---             | 7.9<br>(3)   | 26.9<br>(14)                          |
| Extra counseling services                                | 93.0<br>(40) | 2.3<br>(1)  | ---                               | ---             | 4.7<br>(2)   | 25.9<br>15                            |
| In-service training for professors<br>and staff members" | 92.1<br>(35) | ---         | ---                               | 2.6<br>(1)      | 5.3<br>(2)   | 29.6<br>(16)                          |
| Special orientation                                      | 92.3<br>(36) | 2.6<br>(1)  | ---                               | ---             | 5.1<br>(2)   | 32.8<br>(19)                          |
| Club, organization, or<br>support group                  | 79.4<br>(27) | 5.9<br>(2)  | ---                               | ---             | 14.7<br>(5)  | 37.0<br>(20)                          |
| Special housing arrangements                             | 75.8<br>(25) | 18.2<br>(6) | ---                               | ---             | 6.1<br>(2)   | 38.9<br>(21)                          |
| Typewriters                                              | 90.6<br>(29) | 3.1<br>(1)  | ---                               | ---             | 6.3<br>(2)   | 39.6<br>(21)                          |
| Diagnostic testing for<br>academic placement purposes    | 81.8<br>(27) | 9.1<br>(3)  | ---                               | ---             | 9.1<br>(3)   | 44.1<br>(26)                          |

(continued)

**Table 5. Source of Payment for Services Provided by Colleges (N=66)**

| Service                      | College      | Student     | Vocational<br>Rehabili-<br>tation | Govern-<br>ment | Other       | Service Not<br>Provided by<br>College |
|------------------------------|--------------|-------------|-----------------------------------|-----------------|-------------|---------------------------------------|
| Specialized resource room    | 93.1<br>(27) | ---         | ---                               | 3.4<br>(1)      | 3.4<br>(1)  | 49.1<br>(28)                          |
| Calculators                  | 77.8<br>(21) | 3.7<br>(1)  | ---                               | ---             | 18.5<br>(5) | 50.9<br>(28)                          |
| Peer or assistant counselors | 80.0<br>(24) | ---         | ---                               | 3.3<br>(1)      | 16.7<br>(5) | 49.2<br>(29)                          |
| Transportation               | 91.7<br>(22) | 4.2<br>(1)  | ---                               | ---             | 4.2<br>(1)  | 61.3<br>(38)                          |
| Large print books            | 68.4<br>(13) | ---         | 15.8<br>(3)                       | 5.3<br>(1)      | 10.5<br>(2) | 67.2<br>(39)                          |
| Braille books                | 50.0<br>(7)  | ---         | 21.4<br>(3)                       | 7.1<br>(1)      | 21.4<br>(3) | 65.2<br>(43)                          |
| College preparatory program  | 50.0<br>(7)  | 28.6<br>(4) | ---                               | 14.3<br>(2)     | 7.1<br>(1)  | 76.7<br>(46)                          |
| Electronic notetakers        | 62.5<br>(5)  | ---         | ---                               | ---             | 37.5<br>(3) | 85.7<br>(48)                          |

\*In-service training was a service provided to professors and staff members, but not to students, per se.



questionnaire. They responded with a lengthy list of both equipment and services. Most of the listed equipment could be categorized as computer-related (Kurzweil, speech software and synthesizers, computer scanners, computer brailers, laptop computers, large computer monitors, computer access laboratory, orientation to word processing and computers, and software modifications to meet special needs). Colleges also provided Perkins brailers, slates and stylus, talking calculators, low vision magnification devices, Visualteks, and raised line drawing kits. Some colleges assisted their students by repairing disability-related equipment or by providing a hands-on trial use of adaptive technology.

Colleges provided a wide variety of indirect and direct services to their students with disabilities. One indirect service offered by colleges was assistance in locating services in the college and the larger community including support groups, vocational rehabilitation programs, Radio Reading Services, Libraries for the Blind, Recordings for the Blind, and consumer organizations. Colleges made available information about job placement and internships to students interested in working during college or after graduation. College officials provided information about financial aid and scholarships, as well as lists of available readers, notetakers, mobility assistants, attendants, and tutors.

Among the direct services offered were braille and large print maps of campus, department brochures available in braille, test accommodations for freshmen placement testing, priority scheduling and registration, reimbursements in tuition in order to reduce students' courseloads, "buddy programs" pairing upperclassmen to incoming students with similar disabilities, activities of daily living evaluations, relocation to accessible classrooms, and special parking facilities. Administrators often wrote letters to teachers and advocated on the behalf of their students. Some colleges enlarged and brailled notes and handouts, provided visual assistants for science laboratory work, offered individual study rooms with access to braille reference materials, and provided access to libraries through electronic card catalogs with voice output. Other services offered were career exploration and counseling; training of tutors; on-campus newsletters for students with disabilities; and assistance with study skills, notetaking, test preparation, math, writing, reading, and comprehension. Many colleges recognized the achievements of students with disabilities through annual awards ceremonies.

## Qualitative Analysis

### Introduction

The purpose of content analysis is to systematically describe information provided in a written or spoken format. In this study, students' comments to two open-ended questions were analyzed: "What do you know now about college that you wish you had known when you were a freshman?" "What advice would you give a high school student with a visual impairment who wanted to go to college?"

Responses obtained from 102 respondents were carefully read to determine a general subject category. Sentences were sorted on the basis of content similarity. No attempt was made to label the categories during this preliminary phase. These initial categories were then reviewed and resorted in order to ensure that all categories were discrete and mutually exclusive. Categories were then labeled. The analyzed comments were reviewed by a second researcher to establish validity of the categories. Any changes were discussed by the two researchers and categories were finalized. Summary descriptions were then developed for each category.

### What Do You Know Now About College that You Wish You Had Known when You Were a Freshman?

Table 6 reports the percentage of students who responded to the open-ended question. The percentage of responses total more than 100% because students were free to provide as many responses as they wished. Appendix D contains the complete list of responses to this item.

*Communicate with teachers.* Ten percent of the students made statements having to do with communicating with their teachers. The respondents wished that they had been aware of the importance of communication with, and the approachability of teachers. One respondent stressed the importance of taking care of issues with teachers without intervention from anyone else.

*Access to alternate media and adaptations.* Sixteen percent of the respondents mentioned issues of access to alternate media and adaptations. Comments in this section pertained to the difficulty of determining media that is best for different subjects (e.g., difficulty in finding readers for French courses), switching between different reading media (e.g., braille to audio tapes), and the importance of knowing braille. Other comments in this section stressed the importance of being aware of disabled student services and using those services (e.g., notetakers, readers, tutors, etc.). Two respondents emphasized the need to learn how to work with computers.

*Study habits.* The largest group of students (18%) made reference to this subject area. Respondents reported a lack of awareness (on their part) of the importance of good study habits, hard work, concentration, saving class notes for later courses, and good reading habits. Also, two respondents felt that in their

**Table 6. "What do you know now about college that you wish you had known when you were a freshman?" (N = 102)**

| Category                                   | Percentage |
|--------------------------------------------|------------|
| Communicate with teachers                  | 9.8        |
| Access to alternate media and adaptations  | 15.7       |
| Study habits                               | 17.6       |
| Hard work or difficulty                    | 14.7       |
| Assertiveness and self-advocacy            | 14.7       |
| Responsibility                             | 4.9        |
| Time management and organization           | 16.7       |
| Extracurricular activities                 | 2.9        |
| Support services                           | 12.7       |
| Knowledge of the "system"                  | 6.9        |
| Academic advice and scheduling             | 9.8        |
| Selecting a college or major area of study | 4.9        |
| Financial assistance and cost              | 5.9        |
| Transportation and O&M                     | 5.9        |
| Social interactions                        | 11.8       |
| Test-taking and other skills               | 7.8        |
| General information                        | 11.8       |

early undergraduate years they did not know how to study for specific subjects (e.g., algebra) and did not have good writing skills. One person wished that he had realized the value of keeping his grade point average as high as possible. In contrast, one person wished that she had spent less time studying.

*Hard work or difficulty.* Comments from 15% of the respondents were grouped into this category. Respondents' comments in this section conflicted with each other. On the one hand, several respondents perceived college courses as requiring more hard work and being more difficult than high school studies. In fact, one respondent felt that students with visual impairments needed to work harder than other students. On the other hand, four respondents felt that college was either not very different from high school or was not as difficult as they had expected.

*Assertiveness and self-advocacy.* An equally large number of students mentioned the issue of assertiveness and self-advocacy (15%). Respondents wished that they had known how to be more assertive when dealing with teachers, students, and personnel from the office of disabled student services. They also wished they knew more about their legal rights. In this context, two respondents also mentioned that there is "a lot more to college than high school" and that students may not get as much help in college as they had received in high school.

*Responsibility.* Five percent of the respondents made statements which were grouped into this category. They had not envisaged the amount of responsibility involved in getting work done on time and the demands of a college lifestyle. Two respondents felt that they should have been more serious about their studies during their freshman year.

*Time management and organization.* Seventeen percent of the respondents made comments about time management and organization. Respondents stated that time management and scheduling were important, especially when it came time to order textbooks for courses. Also, they emphasized the need to attain the "right" balance between studies and social and extracurricular activities.

*Extracurricular activities.* Three respondents (3%) felt that they should have been more involved in extracurricular activities, such as academic groups and student organizations.

*Support services.* Thirteen percent of the students commented on the availability of support services. Respondents felt that during their freshman year they were not familiar with the office of disabled student services nor were they aware of the range of services offered or available to them. One person also felt that support groups for students with disabilities would have been helpful.

*Knowledge of the "system".* Seven percent of the students wished that they had known more about the college "system." In general, respondents felt that they would have benefitted from a knowledge of how the college system worked (e.g., politics, paperwork required, etc.). One respondent believed that the personnel associated with the college had been very unhelpful to him.

*Academic advice and scheduling.* Academic advice and scheduling were areas of concern to 10% of the students. They felt that knowledge about

registration procedures, planning a coursework program, and transferrable credits would have been beneficial during their freshman year. Also, two respondents stated that they were not aware of the policy for dropping courses.

*Selecting a college or major area of study.* Five percent of the respondents shared advice about selecting a college or major area of study. Two respondents stated that the selection of a college and major area of study should be completed after careful and considerable research.

*Financial assistance and cost.* Six percent of the respondents offered comments in this subject area. There was a lack of awareness about the financial resources available to undergraduate students and the high cost of attending college.

*Transportation and O&M.* Six percent of the respondents reported that they lacked crucial knowledge about transportation and the campus. Two respondents would have liked better O&M instruction.

*Social interactions.* Twelve percent of the students provided mixed comments about social interactions. Some students wished that they had known how easy it was to make friends and to relate to people. They stressed the importance of making good friends. Other students wished that they had anticipated the difficulty of relating to sighted individuals. These students felt extremely isolated in the college setting.

*Test-taking and other skills.* Eight percent of the respondents made comments about test-taking and other skills. Students considered the following skills to be important for a student to master: skill in choosing between multiple-choice test items, typing skills, and general grammar and writing skills. Others emphasized the importance of not getting "stressed out."

*General information.* Comments from 12% of the students were grouped into this general category. Two students felt that success in college requires commitment. Several respondents made positive comments about college life. For example, they believed that college was both easy and fun as long as one was disciplined and worked hard. One respondent believed that work experience was very important during college. One person felt that she would have benefitted from a better understanding about the functional implications of vision loss (specifically, reading comprehension).

### **What Advice Would You Give a High School Student with a Visual Impairment Who Wanted to Go to College?**

Table 7 reports the percentage of students who responded to this question. The percentage of responses total more than 100% because students were free to provide as many responses as they wished. Appendix E contains the complete list of responses to this item.

*High school preparation.* Nine percent of the students offered advice on preparing for college while in high school. They talked about taking advanced placement courses, making good grades, and developing learning skills for survival



**Table 7: "What advice would you give a high school student with a visual impairment who wanted to go to college?"**

| Category                                                                   | Percentage |
|----------------------------------------------------------------------------|------------|
| High school preparation                                                    | 8.8        |
| College options and choices                                                | 36.3       |
| Transportation and O&M                                                     | 6.9        |
| Financial assistance                                                       | 3.9        |
| Contact or talk to disabled student services                               | 17.6       |
| Contact or talk to vocational rehabilitation and other disability agencies | 4.9        |
| Decide major area of study                                                 | 5.9        |
| Contact or talk to peers                                                   | 6.9        |
| Contact or talk to teachers                                                | 21.6       |
| Alternative media                                                          | 17.6       |
| Computers and technology                                                   | 8.8        |
| Assertiveness, advocacy, and independence                                  | 30.4       |
| Course load                                                                | 2.0        |
| Study habits and time management                                           | 9.8        |
| Extracurricular activities and social networks                             | 11.8       |
| Disability-related comments                                                | 16.7       |
| Motivational comments                                                      | 37.3       |
| General comments                                                           | 11.8       |

in college. Respondents believed that students should evaluate their abilities and develop long-term goals.

*College options and choices.* A large group of students responded to this category (36%). Respondents gave the following specific advice for high school students selecting a college: (1) Start planning for college early, (2) obtain information about support services provided to students with visual impairments, (3) become familiar with the campus layout and check for transportation facilities, and (4) investigate several colleges before making a selection. Conflicting advice was also given. One respondent thought that larger colleges had better services and facilities for students with disabilities, while two other respondents believed that smaller colleges provided better transition services. A lot of comments were made about the importance attributed to support services, transportation, and O&M when selecting a college.

*Transportation and O&M.* Seven college students (7%) advised future students to develop good mobility skills before enrolling in college. This category differs from the previous category because this is advice about obtaining mobility skills regardless of the school selected. The previous category advised students to consider O&M when evaluating a particular college.

*Financial assistance.* Four percent of the college students advised high school students to apply for and use all possible financial resources including colleges, agencies, and scholarships.

*Contact or talk to disabled student services.* Eighteen percent of the respondents believed that talking to personnel from the office of disabled student services was beneficial. They advised high school students to contact this office before and during attendance at college to obtain special services.

*Contact or talk to vocational rehabilitation and other disability agencies.* Five percent of the students suggested that vocational rehabilitation and the commission for the blind were good resources for college-related services. Students should take advantage of all the available resources available to them.

*Decide major area of study.* Six percent of the students offered conflicting advice about deciding on a major area of study. Two respondents recommended that a college major should be carefully decided as early as possible while two other respondents encouraged high school students to enroll in college even without declaring a major area of study.

*Contact or talk to peers.* Seven percent of the respondents believed that college students with visual impairments should be contacted for advice in order to identify available services and anticipate problems in attending college. These students believed that this group's advice was invaluable because it came from people with visual disabilities who were actually attending college.

*Contact or talk to teachers.* A large group of students (22%) offered advice on talking with teachers about the disability. Respondents recommended that students contact and get to know their teachers to make them aware of their disability-related needs. Comments were made about how easy it was to communicate with teachers and how this flow of communication helped pave the

way to solve problems in the future.

*Alternative media.* Various comments about alternative media were offered by 18% of the students. A few respondents stated that knowledge of braille was helpful. However, two respondents believed that braille was of limited use because of its "slowness" and because braille materials were unavailable in foreign language courses. They recommended that recordings of books should be obtained in advance. Readers should be counseled about the responsibilities of their jobs. A student with a visual impairment may need a private dormitory room because of bulky equipment used to read.

*Computers and technology.* Nine percent of the college students encouraged high school students to purchase a computer for schoolwork and to keep up with changing technology. Changing technology places demands upon any computer user, including one with a visual impairment.

*Assertiveness, advocacy, and independence.* A large group of respondents (30%) emphasized the importance of achieving independence early in order to obtain needed services (e.g., ordering books in advance, alternative testing). They also stressed that it is essential to be assertive, to advocate for oneself, and to be aware of one's legal rights.

*Course load.* Two percent of the college students advised future students to avoid a heavy course load during the first semester of college.

*Study habits and time management.* Ten percent of the students offered advice about study habits and time management. In general, students were advised to develop good study skills and time management skills. Students should be prepared to work hard. One respondent suggested that students obtain tutoring if possible.

*Extracurricular activities and social networks.* Twelve percent of the students commented on extracurricular activities and social networks in college. Respondents made very positive comments about the ease and importance of making friends. A few respondents warned that students with visual impairments would need to overcome the initial perceptions of sighted individuals about blindness and their hesitancy in interacting with someone with a visual impairment (e.g., sighted students may be afraid that they will have to "take care of" the person with a visual impairment).

*Disability-related comments.* A large percentage of the respondents (17%) encouraged high school students to not let a visual disability limit a person from leading a full, active life. The college students recommended that persons with visual impairments be as self-sufficient as possible and set realistic goals.

*Motivational comments.* More than a third of the students (37%) offered general motivational comments about attending college. Students were encouraged to do their best; to achieve and fulfill their dreams and aspirations; to be determined, disciplined, and confident; to know their limits; and to not become discouraged.

*General comments.* Twelve percent of the respondents offered various pieces of advice that could not be grouped elsewhere. High school students were advised

to (a) work hard, (b) keep grades high, (c) go to college and try not to transfer to other programs, (d) possibly take a break between high school and college, (e) avoid skipping class, and (f) not take everything seriously.

## **Summary**

The comments made by students during this open-ended portion of the survey can be summarized into a few general categories. Many students provided a lot of encouragement to anyone contemplating attending college. They offered practical advice for choosing a college and narrowing one's options. Students with visual impairments were encouraged to be assertive, to advocate for themselves, and to be independent and responsible. Students should work closely with teachers, disabled student services, and other agencies to obtain needed equipment and support, including computers, transportation, O&M, and money. Students must learn good study habits and time management and organization skills, as well as test-taking skills. The college experience includes life outside the classroom. Students were encouraged to cultivate friendships through informal social interactions and organizational activities.

## Summary

An underlying goal of this project was to make the findings useful to young people with visual impairments who are considering postsecondary education options. That is why the reader is strongly advised to carefully read the students' own words in Appendix D and E. These are the words of advice from successful college students with visual impairments. Sometimes the best advice comes from those individuals who are actually performing well in a given situation.

The students' comments, their answers to survey questions, information from college administrators, and a review of the literature were synthesized to answer the three main questions of the research project: (1) What do students with visual impairments need to know to attend college? (2) What are the specific steps that students with visual impairments need to take in order to successfully attend college? and (3) Do skills, knowledge, and steps differ from the perspective of students versus program administrators? The remainder of this section will be organized around these three questions.

### What Do Students with Visual Impairments Need to Know to Attend College?

First, students with visual impairments need a good academic background to prepare them for the rigors of college. If students have not mastered the skills and information taught at the high school level, they will be handicapped upon entering college; this handicap has little to do with the visual impairment. Making good grades in high school is one of the best preparations that *any* student (including one with a visual impairment) can make to prepare for college.

Students with visual impairments must have built up a repertoire of skills to allow them to compete at the college level. They must have good study skills, notetaking skills, and test-taking skills. This will require the student to locate the correct adaptive equipment and to become proficient in using that equipment. More and more, students will have to become familiar, and even proficient, on computers.

Students with visual impairments must be able to keep up with reading assignments. They may have to arrange for taped, large print, or brailled materials. In order to obtain class materials in an alternative reading medium, students will have to work closely with teachers to acquire reading assignments in advance. They may choose to use readers or they may invest in adaptive equipment which allows them to read the materials for themselves. Regardless of the method used, students with visual impairments must be able to read the class assignments.

If a student with a visual impairment needs assistance, it is his or her responsibility to make the initial request. Students must become comfortable discussing their needs in relationship to their visual impairment with teachers, administrators, other students, and personnel from disabled student services.



Armed with knowledge about their legal rights, students will be able to overcome resistance to obtaining necessary accommodations.

Students with visual impairments must learn how to do things for themselves. This is a part of growing up. Readers may have to be located, hired, trained, or fired. The student should be able to make arrangements for their own readers. Textbooks may have to be ordered in advance. The student should learn where to order books and then take on this task for him or herself. Students will have to travel from dormitories (or from other types of housing), to classes, to the cafeteria, and back again. The student should learn those routes and alternative methods to compensate for late rides, inclement weather, or rescheduled classes. These are only a few examples of the need for students to establish their independence and to develop responsibility for themselves.

It requires money to attend college. Students with visual impairments have sources of money available through vocational rehabilitation which are not available to sighted students. Financial aid application requirements are often rigid, so students must be prepared to meet other's schedules and requirements in order to receive funds. Other sources of money include family resources and self-payment. Whatever the source of funds, students will have to learn how to manage their money because the amounts received are, somehow, never enough.

Many respondents in this study worked for a period of time before enrolling in college. Even those who did not work for pay, often participated in volunteer activities. Many of the students stressed the importance of joining an organization or interest group in order to network, to gain information, and to develop supports.

The biggest problems that students in this study encountered while in college were managing their time; accessing diagrams, charts, books, and written materials; having enough money; and overcoming difficult classes or assignments. The next most frequently mentioned problems were finding and utilizing transportation, finding a way around campus, participating in recreational or athletic activities, taking exams with time limits, accessing computers, obtaining special services, and dealing with teachers. Coping with social pressures was the next leading problem, followed by receiving financial aid, loneliness, finding and scheduling readers, making good grades, writing papers, making friends, being accepted, getting along with a roommate, registering for classes, locating suitable housing, living independently, and managing money.

If future students could closely examine this list of common problems, see which ones might apply to them, and take remedial steps to overcome those problems before they occur, they might be better prepared for college. Regardless of the circumstances, potential students can take comfort from one student who advised that the first year of college is the hardest; it does get better!

## **What are the Specific Steps that Students with Visual Impairments Need to Take in Order to Successfully Attend College?**

Students with visual impairments thinking about college should begin early to make their plans. They must satisfy the requirements of the college, scholarship granting agencies, and vocational rehabilitation. This process does take time to complete.

Students should fully research their options. They must know what they want to accomplish and then set out to meet their goals. Some of the students in the study delayed their college education in order to work for awhile. Students planning to attend college should know that these students were doing quite well at their studies when they did return to college.

An earlier section, "Timelines," outlined a detailed set of activities which should be accomplished by a certain time in order to attend college following high school graduation. A much shortened version is presented here. A potential college student should adapt the list to his or her particular circumstances.

Junior high students with visual impairments can begin exploring their career options, as well as concentrating on their studies.

Ninth grade students can continue to explore their career options and include vocational activities in the annual IEP. The guidance counselor can help by listing preparatory classes needed for college and working with the student to determine if this plan of study can be met. Standardized achievement tests should be ordered in an accessible format for the student. The student can make initial contact with the vocational rehabilitation counselor. Participation in extracurricular activities, clubs, and organizations is important for college preparation. If the student has not done so already, he or she can obtain a public library card, apply for membership in the Library for the Blind, and register with Recordings for the Blind.

In the tenth grade, the student may continue to explore his or her career options and again, include vocational activities in the annual IEP. Meetings with the vocational rehabilitation counselor will continue. The student will complete standardized achievement tests, review results with the guidance counselor, and arrange for necessary tutoring. At this point, the student should begin researching possible colleges. Participation in extracurricular activities, clubs, and organizations should continue. The student may consider taking a job or becoming a volunteer. It may become necessary for the student to enroll in a summer enrichment program to learn braille, computer skills, O&M, study skills, etc. The student should obtain a Social Security card, an identification card, and, if necessary, a reduced fare card from local transportation systems.

Exploration of career options and inclusion of vocational activities in the annual IEP should continue in the eleventh grade. The student will also continue to meet with the vocational rehabilitation counselor; participate in extracurricular activities, clubs, and organizations; and work or volunteer. The student should continue to research possible colleges by reviewing their catalogs. The student can

begin to reduce the list of possible colleges. College expenses should be discussed with parents and the student can register for scholarships and financial assistance. The student should begin to visit college campuses and obtain college application forms and information about application procedures, time frames, and financial aid. The student may once again, enroll in summer enrichment programs to gain needed skills. The student should also register to take standardized college admission tests in an accessible format.

The high school senior has a lot to accomplish during the year. Career options may become more definite and the annual IEP should reflect this. Meetings with the vocational rehabilitation counselor should include discussions about college options, community support services, vocational rehabilitation services, and state and national organizations. Participation in extracurricular activities, clubs, organizations, jobs, and volunteer work will continue. The list of colleges will be further reduced. All applications should be completed and mailed by their deadlines. The student should complete standardized admission tests and send scores to selected colleges. During this time, the student should register for scholarships, complete all health and immunization requirements, and continue to meet all deadlines. The student will want to complete all initial college visits and then revisit the top college choices to inquire about financial aid, scholarships, and services for students with disabilities. Once acceptances arrive, the student can select a college to attend, pay deposits (including housing), and complete all necessary paperwork. The student may choose to discuss his or her needs with the college's office of disabled student services. Throughout the year, the student must continue to maintain good grades.

### **Do Skills, Knowledge, and Steps Differ from the Perspective of Students Versus Program Administrators?**

In one way, the goals of students and administrators do not differ. Both groups want students to obtain a college education. However, the emphasis is sometimes different because of separate priorities. The student only has to be concerned about completing his or her own college requirements, while the college administrator has hundreds or thousands of students with whom to deal.

Students with visual impairments will have to begin their college search early to find a college that best meets their academic requirements and their need for adaptations and services. Students should understand that they are just one among many individuals who make requests for special services. Some accommodations simply take time to accomplish, so students should allow for that delay.

If students with visual impairments need assistance, it is their responsibility and obligation to ask for help. It is not college administrators' responsibility to seek out students, however, they should make the services as easy to access as possible. College students may have developed a rigid set of requirements for adaptive equipment. College administrators are not required to

provide any particular piece of equipment, but they must work with the student to make sure that an acceptable adaptation is provided. Students should be prepared to offer suggestions and solutions and not just problems. Sometimes the administration is amenable, but they simply do not know what is expected or what is available.

Students with visual impairments should not expect and should never ask for adaptations or services that place them at an advantage over other students. Administrators should allow only those adaptations that place the student in the same competitive setting as all other students. All students will not pass their courses or graduate from college, and neither will all students with visual impairments.

Administrators in this study tended to agree that the Americans with Disabilities Act will result in increased awareness of disability issues among their faculty, staff, and students. Those schools that made a sincere commitment to Section 504 of the Rehabilitation Act of 1973 will have less difficulty complying with ADA. ADA will probably result in more students with disabilities attending college, including those with visual impairments.

From a list of services provided by colleges, students in this study were asked which ones they used. Administrators were also asked to mark those services that were used by students at their schools. The listing of services for students and administrators was not entirely compatible, therefore, any comparison between the two sets of responses will be tentative.

The top group of services as reported by students were alternate test arrangements, computers, special preregistration for classes, college health services, tutors, college counseling services, readers, and adapted reading formats. All of these services were reported by a high percentage of administrators as services offered by their colleges and used by their students (except for college health services, which was not included on the administrators' list). Administrators of college programs might want to continue strengthening these services, based on their use by students with visual impairments.

In summary, students with visual impairments can successfully attend college with their sighted peers if supporting services are available. Based on interviews with students and administrators, this monograph has described the types of skills and information that students with visual impairments need to know to attend college, the specific steps that should be taken to achieve this goal, and some of the differences in the perceptions of students and administrators.



## References

- A.C.T. study probes grades of handicapped students. (1980). *Phi Delta Kappan*, 61, 668.
- American Association for the Advancement of Science. (1991). *Barrier-free in brief: Laboratories and classrooms in science and engineering*. Washington, DC: Author.
- American Foundation for the Blind. (1990). *Transition tracks: A resource guide to Georgia for visually impaired students, parents, teachers, counselors*. The Georgia Transition Team.
- Association on Handicapped Student Service Programs in Postsecondary Education. (no date). *The Americans with Disabilities Act and postsecondary education*. Columbus, OH: Author.
- Baker, J., & Cocchi, W. (1987). *Blindness/visual impairment directory of resources*. Columbus, OH: AHSSPPE.
- Barry, K., Brinckerhoff, L., Keeney, L., & Smith, N. (1983). *College students with learning disabilities*. Madison, WI: Board of Regents of the University of Wisconsin System, McBurney Resource Center.
- Bender, M., Richmond, L. J., & Pinson-Millburn, N. (Eds.). (1985). *Careers, computers, and the handicapped*. Austin, TX: PRO-ED.
- Bennett, R. E., & Ragosta, M. (1988). Handicapped people. In W. W. Willingham, M. Ragosta, R. E. Bennett, H. Braun, D. A. Rock, & D. E. Powers (Eds.), *Testing handicapped people* (pp. 17-36). Boston: Allyn & Bacon.
- Bennett, R. E., Ragosta, M., & Stricker, L. J. (1988). Test results. In W. W. Willingham, M. Ragosta, R. E. Bennett, H. Braun, D. A. Rock, & D. E. Powers (Eds.), *Testing handicapped people* (pp. 37-46). Boston: Allyn & Bacon.
- Brill, J. (1987). *Learning disabled adults in postsecondary education*. Washington, DC: HEATH Resource Center of the American Council on Education.
- Brinckerhoff, L. C. (1991). *College students with learning disabilities* (2nd ed.). Columbus, OH: AHSSPPE.



- Brown, J. M. (1990). Retention and transition in postsecondary vocational education. *Impact*, 3(3), 8, 18. Minneapolis, MN: Institute on Community Integration.
- Brown, D. R., Keller, E. C., Jr., Lang, H. G., & Ricker, K. R. (1983). *Testing physically handicapped students in science*. Morgantown, WV: Printech.
- Brown, J. T., & Brown, G. G. (no date). *From access to equity*. Columbus, OH: AHSSPPE.
- Butler-Nalin, P., Marder, C., & Shaver, D. M. (1989). *Making the transition: An explanatory model of special education students' participation in postsecondary education*. Menlo Park, CA: SRI International.
- Council of Chief State School Officers Resource Center on Educational Equity. (no date). *The disabled student in transition: Developing cooperative state models to meet the transition needs of disabled youth: An interagency approach*. Washington, DC: Author.
- Davie, A. R. (1987). *Young adults with learning disabilities and other special needs: Guide for selecting postsecondary transition programs*. Washington, DC: HEATH Resource Center of the American Council on Education.
- Davie, A. R. (1990). *Getting ready for college: Advising high school students with learning disabilities*. Washington, DC: HEATH Resource Center of the American Council on Education.
- Davis, C. L., Dollahan, J., Jacobs, M., Jaeger, & Marici, T. (1986). *A guide for parents of college-bound learning disabled high school students*. Greenvale, NY: Long Island University.
- Dollahan, J., & Jacobs, M. (1987). *Counseling the college bound learning disabled student*. Greenvale, NY: Long Island University.
- Fichten, C. S., Amsel, R., Bourdon, C. V., & Creti, L. (1988). Interaction between college students with physical disabilities and their professors. *Journal of Applied Rehabilitation Counseling*, 19(1), 13-20.
- Gibbs, G. (1990). *Campus daze. Easing the transition from high school to college*. Alexandria, VA: Octameron Associates.
- Hamilton, S. (1989). *Student consumer speaks up*. Washington, DC: HEATH Resource Center of the American Council on Education.

- Harrell, R. L., & Curry, S. A. (1987). Services to blind and visually impaired children and adults: Who is responsible? *Journal of Visual Impairment and Blindness*, 81(8), 368-376.
- Hartman, R. C., Baker, B., & Harris, R. (1986). *Strategies for advising disabled students for postsecondary education*. Washington, DC: HEATH Resource Center of the American Council on Education.
- Hartman, R. C., & Brill, J. (1989). *Financial aid for students with disabilities*. Washington, DC: HEATH Resource Center of the American Council on Education.
- Hartman, R. C., & Redden, M. R. (1985). *Measuring student progress in the classroom*. Washington, DC: HEATH Resource Center of the American Council on Education.
- Haugann, E. M. (1987). Visually impaired students in higher education in Norway. *Journal of Visual Impairment and Blindness*, 81(10), 482-484.
- HEATH Resource Center of the American Council on Education. (1986). *Access to the science and engineering laboratory and classroom - 1986 Edition*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (1988). *New alternatives after high school for persons with severe handicaps*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (1989a). *Focus on college admissions tests*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (1989b). *Hidden handicaps*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (1989c). *Make the most of your opportunities. A guide to postsecondary education for adults with handicaps*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (1989d). *Students with severe handicaps on campus*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (1990a). *Americans with Disabilities Act. Information from HEATH*, 9(2), 1, 3, 10.

- HEATH Resource Center of the American Council on Education. (1990b). Tech act. *Information from HEATH*, 9(1), 4.
- HEATH Resource Center of the American Council on Education. (1992). *1993 Financial aid for students with disabilities*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (1993a). Facts you can use. *Information from HEATH*. 12(2), 4-7.
- HEATH Resource Center of the American Council on Education. (1993b). *Resource Directory: 1993-1994*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (no date:a). *Helping LD students prepare for college*. Washington, DC: Author.
- HEATH Resource Center of the American Council on Education. (no date:b). *Section 504 and its impact*. Washington, DC: Author.
- Hippolitus, M. (1986). *Education for employment. A guide to postsecondary vocational education for students with disabilities (1986-1987 edition)*. Washington, DC: HEATH Resource Center of the American Council on Education.
- Hurley, O. L., Hirshorne, A., Hunt, J. T., & Kavale, K. (1979). Predictive validity of two mental ability tests with Black deaf children. *Journal of Negro Education*, 48(1), 14-19.
- Illinois State Board of Education. (no date). *Community colleges linkages: Impact of the DAVTE special needs appendix on the delivery of support services at the community college*. Springfield, IL: Author.
- Jarrow, J., Baker, B., Hartman, R., Harris, R., Lesh, K., Redden, M., & Smithson, J. (1991). *How to choose a college: Guide for the students with a disability*. Columbus, OH: AHSSPPE, in coordination with the HEATH Resource Center of the American Council on Education.
- Kessler, J. (1984). Accessible computers in the university. *Journal of Visual Impairments and Blindness*, 78, 414-417.
- King, W. L., & Jarrow, J. E. (1992). *Testing accommodations for persons with disabilities: A guide for licensure, certification, and credentialling*. Columbus, OH: AHSSPPE, U.S. Department of Education.

- Kirchner, C., McBroom, L. W., Nelson, K. A., & Graves, W. H. (1992). *Lifestyles of employed legally blind people: A study of expenditures and time use* (Technical report). Mississippi State: Mississippi State University, Rehabilitation Research and Training Center on Blindness and Low Vision.
- Liscio, M. A. (Ed.). (1986). *A guide to colleges for visually impaired students*. Orlando, FL: Academic Press.
- Mangrum, C. T., & Strichart, S. S. (1984). *College and the learning disabled student: A guide to program selection, development, and implementation*. Orlando, FL: Grune & Stratton.
- Marder, C., & D'Amico, R. (1992). *How well are youth with disabilities really doing? A comparison of youth with disabilities and youth in general*. Menlo Park, CA: SRI International.
- McLoughlin, W. P. (1992). Helping the physically handicapped in higher education. *Journal of College Student Personnel*, 23(3), 240-246.
- Michael, R. J. (1987). Evaluating the college of choice. *Academic Therapy*, 22(5), 485-488.
- Monahan, L. H., Giddan, N. S., & Emener, W. C. (1978). Blind students: Transition from high school to college. *Journal of Visual Impairment and Blindness*, March, 85-87.
- National Council on Disability. (1989). *The education of students with disabilities: Where do we stand? A report to the President and the Congress of the United States*. Washington, DC: Author.
- National Federation of the Blind. (1981). *Postsecondary education and career development: A resource guide for the blind, visually impaired, and physically handicapped*. Baltimore, MD: Author.
- National Information Center for Children and Youth with Disabilities. (1991a, September). The importance of keeping records. *NICHCY transition summary*, p. 13. Washington, DC: Author.
- National Information Center for Children and Youth with Disabilities. (1991b, September). Postsecondary education and training opportunities. *NICHCY transition summary*, pp. 15-19. Washington, DC: Author.

- National Information Center for Children and Youth with Disabilities. (1991c, September). Taking action. *NICHCY transition summary*, pp. 21-22. Washington, DC: Author.
- A Practical Guide to Taking the SATs. (1986). *The Exceptional Parent*, 16(2), 48.
- Ricker, K. S. (1981a). Optical media bring biology to visually impaired students. *The Science Teacher*, 48, 36-37.
- Ricker, K. S. (1981b). Writing audio scripts for use with blind persons. *Journal of Visual Impairment and Blindness*, 75, 297-299.
- Ricker, K. S., & Benefield, L. W., Jr. (1981). Teaching biology to visually handicapped students. *Journal of College Science Teaching*, 10, 355-360.
- Ricker, K. S., & Rodgers, N. C. (1981). Modifying instructional materials for use with visually impaired students. *The American Biology Teacher*, 43(9), 490-492, 501.
- Rothstein, L. F. (1986). Section 504 of the Rehabilitation Act: Emerging issues for college and universities. *The Journal of College and University Law*, 13(3), 229-265.
- Satcher, J. F., & Dooley-Dickey, K. (1991). Helping college bound clients with learning disabilities. *Journal of Rehabilitation*, July/August/September, 47-50.
- Schlachter, G. A., & Weber, R. D. (1990). *Financial aid for the disabled and their families: 1990-1991*. Redwood City, CA: Reference Service Press.
- Simpson, F., Huebner, K. M., & Roberts, F. K. (1980). *Transition from school to work: Developing your state team: Why and how*. New York: American Foundation for the Blind.
- Spiers, E. T. (1992). *Students who are blind or visually impaired in postsecondary education*. Washington, DC: HEATH Resource Center of the American Council on Education.
- Staff. (1993, June). What happens next? *AER Report*, 10(3), 1, 3.
- Tannenbaum, R. L. (1984). Where the money is for visually impaired college students: Financial aid information for higher education. *Journal of Visual Impairment and Blindness*, 78(6), 248-250.



- Thomas, C. H., & Thomas, J. L. (1986). *Directory of college facilities and services for the disabled* (2nd ed.). Phoenix, AZ: Oryx Press.
- Thume, L. (1979). Vocational counseling and placement of blind youth. In D. Chiappe (Ed.), *Readings in career and vocational education for the handicapped* (pp. 240-244). Guilford, CT: Special Learning Corporation.
- Tweed, P. K., & Tweed, J. C. (1989). *Colleges that enable: A guide to support services offered to physically disabled students on 40 U.S. campuses*. Oil City, PA: Park Avenue Press.
- U.S. Department of Education, Office for Civil Rights. (1988). *The rights of individuals with handicaps under federal law*. Washington, DC: Author.
- U.S. Department of Education, Office for Civil Rights. (1991). *Auxiliary aids and services for post secondary students with handicaps: Higher education's obligations under Section 504*. Washington, D.C.: Author.
- Valdivieso, C. H., & Hartman, R. C. (1991). Options after high school for youth with disabilities. *NICHCY transition summary*. Washington, DC: National Information Center for Children and Youth with Disabilities.
- White, M., & Maxson, B. J. (no date). *Accommodating disabled students: A resource guide for faculty and staff, Mississippi State University*. Mississippi State, MS: Mississippi State University, Student Support Services.
- Woodward, J. R. (1992). Transitional living for college students: A model approach. *Information from HEATH*, 11(1), 3, 9.
- Yuditsky, I. (1991). *Effective empowerment: Strategies for making education accessible for persons with disabilities*. Toronto, Ontario, Canada: Canadian Rehabilitation Council for the Disabled.

# **APPENDIX A**

## **Student Survey**

EXACT TIME NOW \_\_\_\_\_ (AM/PM) \_\_\_\_\_

SUBJECT NUMBER \_\_\_\_\_

INTERVIEWER \_\_\_\_\_

GENDER 1 = MALE; 0 = FEMALE \_\_\_\_\_

INTERVIEW DATE \_\_\_\_\_

Hello. Is this the (LAST NAME) residence? May I speak to (NAME OF RESPONDENT)? This is (YOUR NAME) at the Rehabilitation Research and Training Center on Blindness and Low Vision at Mississippi State University. We are doing a nation-wide research study on transition experiences of college students with visual impairments. We appreciate your agreement to participate in this study. The questions I need to ask take about 20 minutes. The answers you give will be kept confidential. Is this a good time to talk?

1. First, I need to know a little information about your vision loss. How old were you when your visual loss first occurred? CODE ACTUAL AGE.  
99 = DON'T KNOW. BIRTH = 0 SKIP TO Q. 4. \_\_\_\_\_

2. What is the name or diagnosis of your eye problem?  
RECORD FIRST TWO MENTIONED. 999999999 = DON'T KNOW  
\_\_\_\_\_  
\_\_\_\_\_

3. What is your visual acuity for your right eye at best correction? \_\_\_\_\_

... for you left eye at best correction? \_\_\_\_\_

200 = 20/200

800 = COUNT FINGERS

1600 = HAND MOTION

2000 = LIGHT PERCEPTION

0 = TOTAL BLIND OR NO VISION

9999 = DON'T KNOW

4. Do you have major health problems other than visual problems which affect your work or other daily activities? What are they? RECORD FIRST TWO MENTIONED. 0 = NONE;  
999999999 = DON'T KNOW  
\_\_\_\_\_  
\_\_\_\_\_

5. How old were you on your last birthday? CODE ACTUAL AGE. 99 = DON'T KNOW \_\_\_\_\_

6. What racial or ethnic group do you belong to? \_\_\_\_\_

1 = BLACK OR AFRICAN-AMERICAN

2 = HISPANIC

3 = AMERICAN INDIAN

4 = CAUCASIAN

5 = ASIAN

9 = DON'T KNOW

6 = OTHER (SPECIFY) \_\_\_\_\_

7. When you were in elementary school, did you receive any special services related to your visual impairment, for example, a special teacher or a special school? What services did you receive?  
1 = YES; 0 = NO; 9 = DON'T KNOW
- a. SEPARATE SCHOOL FOR THE BLIND. \_\_\_\_\_
  - b. ITINERANT OR TRAVELING TEACHER FOR VISUALLY IMPAIRED STUDENTS. \_\_\_\_\_
  - c. VISION RESOURCE TEACHER ASSISTING IN THE REGULAR CLASSROOM. \_\_\_\_\_
  - d. SEPARATE CLASSES FOR VISUALLY IMPAIRED STUDENTS. \_\_\_\_\_
  - e. ORIENTATION AND MOBILITY. \_\_\_\_\_
  - f. ANYTHING ELSE. (EXPLAIN) \_\_\_\_\_
- 
8. When you were in high school, did you receive any special services related to your visual impairment, for example, a special teacher or a special school? What services did you receive?  
1 = YES; 0 = NO; 9 = DON'T KNOW
- a. SEPARATE SCHOOL FOR THE BLIND. \_\_\_\_\_
  - b. ITINERANT OR TRAVELING TEACHER FOR VISUALLY IMPAIRED STUDENTS. \_\_\_\_\_
  - c. VISION RESOURCE TEACHER ASSISTING IN THE REGULAR CLASSROOM. \_\_\_\_\_
  - d. SEPARATE CLASSES FOR VISUALLY IMPAIRED STUDENTS. \_\_\_\_\_
  - e. ORIENTATION AND MOBILITY. \_\_\_\_\_
  - f. ANYTHING ELSE. (EXPLAIN) \_\_\_\_\_
- 
9. What was your overall grade point average in high school? \_\_\_\_\_  
CONVERT ANSWER TO THE FOLLOWING SCALE: 4 = A; 3 = B; 2 = C;  
1 = D; 0 = F; 9 = DON'T KNOW
10. What was your overall grade point average in college? \_\_\_\_\_
11. What is your college class status? \_\_\_\_\_  
1 = FRESHMAN OR 1ST YEAR IN JUNIOR COLLEGE  
2 = SOPHOMORE OR 2ND YEAR IN JUNIOR COLLEGE  
3 = JUNIOR  
4 = SENIOR  
9 = DON'T KNOW  
5 = OTHER (EXPLAIN) \_\_\_\_\_
12. How many course hours did you take during your first semester of college?  
MAKE SURE THAT THESE ARE COURSE HOURS PER SEMESTER.  
99 = DON'T KNOW \_\_\_\_\_
13. How many semesters have you been in college? 99 = DON'T KNOW; ENROLLMENT  
IN BOTH TERMS OF SUMMER SCHOOL EQUAL TWO SEMESTERS. \_\_\_\_\_
14. While in college, students with visual impairments use many methods to keep up with classroom reading assignments. Which of the following do you use? 1 = YES; 0 = NO; 9 = DON'T KNOW
- a. Readers. \_\_\_\_\_
  - b. Braille textbooks. \_\_\_\_\_
  - c. Braille class materials. \_\_\_\_\_
  - d. Nemeth Code braille materials for math or science. \_\_\_\_\_
  - e. Large print textbooks. \_\_\_\_\_
  - f. Regular print with an enlarger, such as CCTV or V-TEK. \_\_\_\_\_
  - g. Taped textbooks. \_\_\_\_\_
  - h. Taped class materials. \_\_\_\_\_
  - i. Anything else. (SPECIFY) \_\_\_\_\_
-

15. Did you use a computer on a regular basis before you came to college?  
1 = YES; 0 = NO; 9 = DON'T KNOW \_\_\_\_\_
16. Do you use a computer for your college classwork on a regular basis?  
1 = YES; 0 = NO; 9 = DON'T KNOW \_\_\_\_\_
- (((17. Would you use a computer if one was available to you?)))  
1 = YES; 0 = NO; 9 = DON'T KNOW OR DOESN'T APPLY. \_\_\_\_\_
18. Have you ever received any help from a vocational rehabilitation agency?  
1 = YES; 0 = NO; 9 = DON'T KNOW \_\_\_\_\_
19. When you made the transition from high school to college, how helpful were the following to you? Your answer can be anything from 0 = "not helpful" to 4 = "very helpful." 9 = DON'T KNOW OR DOESN'T APPLY.
- a. ((Your vocational rehabilitation counselor.))) \_\_\_\_\_
  - b. Your family. \_\_\_\_\_
  - c. High school teacher or counselor. \_\_\_\_\_
  - d. Rehabilitation professional, such as a counselor or a teacher. \_\_\_\_\_
  - e. College representatives, including people in the office of disabled student services. \_\_\_\_\_
  - f. Friends with visual impairments. \_\_\_\_\_
  - g. Sighted friends \_\_\_\_\_
  - h. Orientation and mobility instructor. \_\_\_\_\_
  - i. Someone else (SPECIFY) \_\_\_\_\_
- 
20. How important are the following in preparing for college? Some of the following events may occur during the first few weeks of classes. Your answer can be anything from 0 = "not important" to 4 = "very important." 9 = DON'T KNOW
- a. Decide on a college to attend. \_\_\_\_\_
  - b. Communicate with the disabled student services office about your visual impairment. \_\_\_\_\_
  - c. Communicate with teachers about your visual impairment. \_\_\_\_\_
  - d. Order textbooks early. \_\_\_\_\_
  - e. Finding and scheduling readers. \_\_\_\_\_
  - f. Apply for financial aid early. \_\_\_\_\_
  - g. Decide college major. \_\_\_\_\_
  - h. Attend college preparatory program. \_\_\_\_\_
  - i. Visit college during orientation. \_\_\_\_\_
  - j. Make housing arrangements. \_\_\_\_\_
  - k. Receive orientation and mobility instruction on campus. \_\_\_\_\_
  - l. Meet or talk with your roommate before moving in. \_\_\_\_\_
  - m. Preregister for classes. \_\_\_\_\_
  - n. Work with vocational rehabilitation services \_\_\_\_\_
  - o. Locating transportation. \_\_\_\_\_
  - p. Learning how to manage your money. \_\_\_\_\_
  - q. Anything else. (SPECIFY) \_\_\_\_\_
-



21. While you have been in college, have any of the following been problems for you?

1 = YES; 0 = NO; 9 = DON'T KNOW

- n. Access to books and written materials.
- b. Access to diagrams and charts.
- c. Access to computers.
- d. Money management.
- e. Receiving financial aid.
- f. Having enough money.
- g. Time management.
- h. Social pressures.
- i. Making friends.
- j. Getting along with a roommate.
- k. Being accepted.
- l. Living independently.
- m. Locating suitable housing.
- n. Loneliness.
- o. Finding your way around campus.
- p. Finding and scheduling readers.
- q. Registration for classes.
- r. Dealing with teachers and professors.
- s. Difficult classes or assignments.
- y. Taking exams with time limits.
- u. Writing papers.
- v. Making good grades.
- w. Obtaining special services for your disability.
- x. Participating in recreational or athletic activities.
- y. Transportation.
- z. Anything else. (EXPLAIN)

22. Did you have any previous paid work experience before entering college?

1 = YES; 0 = NO; 9 = DON'T KNOW

23. Are you returning to college after working for awhile? CODE  
NUMBER OF HOURS. RECORD MOST EXTENSIVE HOURS.  
0 = NO; 99 = DON'T KNOW

24. Did you have any summer work? About how many hours per week did you work in summer? CODE NUMBER OF HOURS (ROUNDING IF NECESSARY). IF WORKED MULTIPLE SUMMERS, RECORD MOST EXTENSIVE SUMMER'S HOURS.  
0 = NO SUMMER WORK; 99 = DON'T KNOW

25. Did you have any after-school paid work during high school?  
About how many hours per week did you work after school?  
CODE NUMBER OF HOURS. RECORD MOST EXTENSIVE HOURS.  
0 = NO AFTER-SCHOOL WORK; 99 = DON'T KNOW

26. Did you ever serve as a volunteer during high school? About how many hours per week did you volunteer? CODE NUMBER OF HOURS. RECORD MOST EXTENSIVE HOURS. 0 = NO VOLUNTEER WORK; 99 = DON'T KNOW

27. Did you have household chores during high school? About how many hours per week did you perform household chores? CODE NUMBER OF HOURS. RECORD MOST EXTENSIVE HOURS. 0 = NO HOUSEHOLD CHORES; 99 = DON'T KNOW

28. Have you been employed while you have been in college? About how many hours per week do you work? CODE NUMBER OF HOURS. RECORD MOST EXTENSIVE HOURS. 0 = NO COLLEGE WORK; 99 = DON'T KNOW \_\_\_\_\_
29. Have you ever used any of the following services or equipment provided by colleges?  
1 = YES; 0 = NO; 9 = DON'T KNOW
- a. Tape recorders. \_\_\_\_\_
  - b. Computers. \_\_\_\_\_
  - c. Calculators. \_\_\_\_\_
  - d. Typewriters. \_\_\_\_\_
  - e. Notetakers. (PERSON) \_\_\_\_\_
  - f. Electronic notetakers. \_\_\_\_\_
  - g. Alternate test arrangements. \_\_\_\_\_
  - h. Special housing arrangements. \_\_\_\_\_
  - i. Special preregistration for classes. \_\_\_\_\_
  - j. Tutors. \_\_\_\_\_
  - k. College preparatory program. \_\_\_\_\_
  - l. Orientation and mobility instruction on campus. \_\_\_\_\_
  - m. College health services. \_\_\_\_\_
  - n. College counseling services. \_\_\_\_\_
  - o. Job placement. \_\_\_\_\_
  - p. Transportation. \_\_\_\_\_
  - q. Anything else. (SPECIFY) \_\_\_\_\_
- 
30. What form of transportation do you use most often around campus, for example, walking or riding the bus?  
1 = Being driven in a private automobile.  
2 = Taxi. \_\_\_\_\_  
3 = Handlift or specialized vehicles for disabled persons.  
4 = Walk.  
5 = Bicycle.  
6 = Bus or tram system.  
9 = DON'T KNOW  
7 = Anything else. (SPECIFY) \_\_\_\_\_
- 
31. When you have errands such as shopping, what form of transportation do you use most often?  
1 = Being driven in a private automobile.  
2 = Taxi. \_\_\_\_\_  
3 = Handlift or specialized vans for disabled persons.  
4 = Walk.  
5 = Bicycle.  
6 = Bus or tram system.  
9 = DON'T KNOW  
7 = Anything else. (SPECIFY) \_\_\_\_\_
-

32. Have you participated in the following extracurricular activities during college?  
 1 = YES; 0 = NO; 9 = DON'T KNOW
- a. Scholastic or academic groups or organizations. \_\_\_\_\_
  - b. Athletic groups or organizations. \_\_\_\_\_
  - c. Religious. \_\_\_\_\_
  - d. Political. \_\_\_\_\_
  - e. Sorority or fraternity. \_\_\_\_\_
  - f. Social groups or organizations. \_\_\_\_\_
  - g. Career or job related. \_\_\_\_\_
  - h. Anything else. (SPECIFY) \_\_\_\_\_
- 
33. About how many hours per week did you spend in extracurricular activities involving groups or organizations during your first year of college? CODE NUMBER OF HOURS (ROUNDING IF NECESSARY). 0 = NONE; 99 = DON'T KNOW \_\_\_\_\_
34. About how many hours per week did you spend on studies outside the classroom during your first semester at college? CODE NUMBER OF HOURS (ROUNDING, IF NECESSARY). 0 = NONE; 99 = DON'T KNOW \_\_\_\_\_
35. Did you decide on a major before entering college? 1 = YES; 0 = NO; 9 = DON'T KNOW \_\_\_\_\_
36. How many times have you officially changed your major? CODE EXACT NUMBER OF TIMES. 0 = NONE; 99 = DON'T KNOW \_\_\_\_\_
37. What is your current major? 0 = NO MAJOR; 99 = DON'T KNOW \_\_\_\_\_
- 
38. Which of the following mobility aids do you use?  
 1 = YES; 0 = NO; 9 = DON'T KNOW
- a. Guide dog. \_\_\_\_\_
  - b. White cane. \_\_\_\_\_
  - c. Sighted guide. \_\_\_\_\_
  - d. Anything else. (SPECIFY) \_\_\_\_\_
- 
39. What are your immediate plans for the future? \*
- 1 = Finish college.
  - 2 = Go to senior college.
  - 3 = Go to graduate school.
  - 4 = Go to work.
  - 5 = Drop out or delay completion of school.
  - 9 = DON'T KNOW
  - 6 = OTHER (SPECIFY) \_\_\_\_\_
-

40. What do you know now about college that you wish you had known when you were a freshman?

---

---

---

---

---

---

41. What advice would you give to a high school student with a visual impairment who wanted to go to college?

---

---

---

---

---

---

Thank you for helping us with this research project. Would you like to receive a copy of the study results? I'll need your name and address in order to mail the report to you. Would you prefer to receive the results in regular print or cassette tape? **RECORD THIS INFORMATION ON A SEPARATE SHEET OF PAPER.**

EXACT TIME NOW \_\_\_\_\_ (AM/PM)

123

## **APPENDIX B**

### **Administrative Survey**



\_\_\_\_\_  
Name

\_\_\_\_\_  
College

**Please note that while another person may complete this form, the first five questions should be answered about the person who is in charge of special need services for students with disabilities at your institution.**

**ORGANIZATION OF SPECIAL NEEDS SERVICES FOR  
STUDENTS WITH VISUAL IMPAIRMENTS**

1. Are you a ☐ part ☐ full time college employee? **(check one)**
2. Is your position as Special Needs Coordinator ☐ part ☐ full time?
3. What percentage of your time do you spend on coordinating special needs? \_\_\_\_\_%
4. Is your position: ☐ Administrative ☐ Faculty ☐ Support Staff ☐ Other
5. What is your position title? \_\_\_\_\_  
\_\_\_\_\_
6. What is the admission policy of your college (i.e., open, regular, or special)?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. Is there a special admission policy for students with visual impairments? **(please describe)** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
8. What will be the effect of the Americans with Disability Act on your college? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
9. Does your college offer other services not described in the following chart **(please list)**  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## SERVICES FOR STUDENTS WITH VISUAL IMPAIRMENTS

| Does your college offer:                                       | No<br>We do not<br>offer this<br>service. | Yes<br>We do offer<br>this service. | Have your<br>students used<br>this service in<br>the past year?<br>Yes - No | Who pays for<br>these services<br>(college,<br>students,<br>etc.)? | Which of<br>these services<br>would you be<br>interesting in<br>providing? |
|----------------------------------------------------------------|-------------------------------------------|-------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------|
| Peer or assistant counselors                                   |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Extra counseling services                                      |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Club, organization, or support group                           |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Diagnostic testing for academic placement purposes             |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Adaptive coursework; e.g. extended time                        |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Alternative testing arrangements, e.g.; extended time, readers |                                           |                                     |                                                                             |                                                                    |                                                                            |
| In-service training for professors and staff members           |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Specialized resource room                                      |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Orientation and mobility assistance                            |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Tutors                                                         |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Notetakers                                                     |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Electronic notetakers                                          |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Readers                                                        |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Special orientation                                            |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Special preregistration                                        |                                           |                                     |                                                                             |                                                                    |                                                                            |
| College preparatory program                                    |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Special housing arrangements                                   |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Transportation                                                 |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Recorded textbooks                                             |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Large print books                                              |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Braille books                                                  |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Cassette recorders                                             |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Adaptive equipment                                             |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Calculators                                                    |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Typewriters                                                    |                                           |                                     |                                                                             |                                                                    |                                                                            |
| Adapted computer equipment                                     |                                           |                                     |                                                                             |                                                                    |                                                                            |

## **APPENDIX C**

### **Introductory Letter to Students**

February 9, 1993

Dear Student,

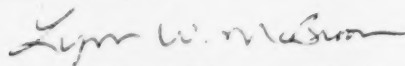
The transition from high school to college requires students to adjust and to grow. A great deal of preparation is also required for students with visual impairments. A new research project funded by the National Institution on Disability and Rehabilitation Research seeks to identify a sample of juniors and seniors with visual impairments in college or second-year students in community colleges in order to identify successful transition experiences. If you fit into this category, we would like for you to participate in a telephone interview about your college transition.

Should you decide to participate, one of our trained interviewers will talk with you about your college transition. The entire interview will last about 20 minutes and can be completed at your convenience. All of your answers will remain confidential. You may also refuse to answer any or all of the questions.

The results of this study will be shared with high school students with visual impairments, guidance counselors, parents, and rehabilitation professionals to help prepare students for college. Future college students with visual impairments will benefit from learning about your experiences. We strongly solicit your support of this project!

If you wish to take part in this telephone interview, simply fill out the form and return it in the business reply envelope. I will be glad to answer any questions you may have either in writing or by calling. Thank you for your help.

Sincerely,



Lynn W. McBroom, Ph.D.  
Research Scientist II

P.O. Drawer 6189  
Mississippi State, MS 39762  
Phone (601) 325-2001 TTY/Voice  
TELEX 785045  
FAX (601) 325-8989

Yes, I would like to participate in the telephone  
interview on transition.

Name: \_\_\_\_\_

Area Code  
& Telephone Number \_\_\_\_\_

Best time to  
call: \_\_\_\_\_



## **APPENDIX D**

**What Do You Know Now About  
College that You Wish You Had  
Known when You Were a  
Freshman?**

## **What Do You Know Now About College that You Wish You Had Known when You Were a Freshman?**

### **Communicate with Teachers**

[Be] honest with instructors at the very beginning.

[I wish I had known] to let professors know what I need[ed]. [I wish I had] spoken up.

Check out your instructors to make sure they're cooperative, for example, allowing tape recorders [in class].

It is OK to make a mistake. Professors are real people. You can go and talk to them.

It is easier to talk to professors than you might think, even if it is a very big class.

[I wish I had known] that some of the professors were more approachable and aren't so intimidating. Go see them the first week to talk to them [about your visual impairment].

[I wish I had known] how helpful the professors would be. [This] made it easier. [I] could have finished faster.

You can sit and talk with your instructors. [You] can visit them during office hours. They're understanding.

[You] have to take care of things yourself. Just deal with things between you and teacher[s] instead of going through disabled student services or vocational rehabilitation.

Professors are real people. [They] are accessible.

### **Access to Alternate Media and Adaptations**

[I] didn't know how difficult it was to obtain scientific materials [or] what organizations to contact. Wish I had known [these things].

French books are very hard to get recorded and very few readers can read French books.

[I wish I had known that] college texts aren't in braille.

Reading and text access was hard at the beginning. [I] didn't have [a] computer with its equipment.

[I wish I had known about the] hassle of getting books in [a] format [that] one can use; stress, etc.

Going from using braille to just using taped texts [was hard]. Wish I had experience using taped textbooks in high school.

Braille, cane: before [you] go to college, know these techniques to help you get through college. Know [or] learn [these skills] in high school to help your transition [to college].

Wish [I] knew braille better.

If [the] college supplies notetakers, be sure to get one, especially if the instructor writes a lot and doesn't read it [out loud]. Tape [record and] take good notes off tape, especially in technical classes (hard).

[I wish I had known] that there wasn't a pool of readers, tutors, notetakers that could be dipped into. College did not provide [these services]. Wish it [college] did; wish I knew it did not have these things. As course material got more difficult, the time readers provided stayed constant; [the time] did not increase as the difficulties [of coursework] did.

I wish I could have turned things in via tape.

I should have used their V-tek [Visualtek], and informed them that I needed new equipment.

Adaptive access to equipment: [I wish I had known] how to get it.

Take advantage of talking books program.

Learn to use a computer first off.

[I wish I had] known computers.

### **Study Habits**

[I wish I had] better study habits and techniques.

[I wish I had known] how to study properly.

[I wish I had known the] importance of developing good study habits early in [my] college career.

[I wish I] had known how to study.

If you study, you can make good grades. [Develop] study habits.

[I wish I had known to] study more.

Wish [I] had dedicated self to studies more.

Concentrate on studies. [College is] not as overwhelming as people make it out to be.

Study groups with other students [are] very helpful. Use them.

[I wish I had known] to read everything and anything [you] can get [your] hands on, [such as] philosophy, etc. Whether required in high school or not, practice writing!

[I wish I had known] that I could save my notes, because the information may be repeated in later courses, especially ones in your major. [I wish I had known] how to study really hard.

[I] wish [I] had known how to deal with [the] fact that you don't have to read *every* line assigned. [You] can just skim and reinforce [the information] with notes.

[I wish I had known] how to study for algebra.

[I wish I] had [a] better ability to write essays.

[I wish I had] studied a little less [and] had more fun.

[I wish I had known] how important it is to keep [my] GPA [grade point average] as high as possible.

[I wish I had] better studying skills.

Use your afternoon study hours wisely.

## **Hard Work or Difficulty**

High school does not prepare you for the work load you will experience in college.

I thought that it was going to be as easy as high school, but it is not as structured and you have to do everything yourself.

[College is] very different [from] high school, because in high school, [you] can get away with not doing very much work and still make pretty good grades; but not in college!

Senior college [is] much harder than junior college.

[College is] not as easy as you think it is. [College] requires a lot of work.

It's [college] a lot of work; takes a lot of time.

[I wish I had known] how much work it is.

[College] is more open, so [you] have to have more self-control and study more.

[I wish I had known that you] work harder if [you are] visually impaired.

Classes are a lot harder. Professors are very demanding.

[I wish I had known] how difficult it [college] is.

[I] had built up stress thinking it [college] was going to be more difficult than it was.

[College] didn't seem that much different to me.

[I] didn't know what to expect. [I was] afraid [college] was going to be unbelievable. Really, [college] is just hard work. [It] takes discipline.

It's [college] not as bad as what I thought it would be. Isn't really as hard or scary as I thought it would be before.

## **Assertiveness and Self-Advocacy**

You have to watch out for yourself. If you have a problem, it is up to you to solve it. Ask for help.



[I wish I had known] how to be more assertive.

Should be more forward with both students and professors about what you need.

Some teachers have their own way and don't want to learn or change. [They] are not open to change [or] new ideas. If you need special assistance, speak up for it, because people aren't going to do it for you.

[I wish I had known] how to be more assertive and ask for things, because you don't get services if you don't ask.

[You] have to seek what you need. [You] have to "make noises" about what you need. [You must] self-advocate. Speak up.

[I wish I had known] how to advocate for myself and ask for the things that I need.

Wish that I had known [about] some of the laws that protect me, pertaining to disabilities.

[I wish I had known] that I have a right to be in school.

[You] have to be resourceful [and] pushy about what you need. Vocational rehabilitation and disabled student services don't always follow through with services, so [you] have to stay on them.

Accept yourself first before anything else.

Self-confidence: [you] will get with time.

There is a lot more to college than high school. In high school, teachers do everything for you. In college, [you] do for yourself.

[There is] not as much help as there is in high school. [You] have to do more on your own.

[You] can't let fears hold you back.

### **Responsibility**

You're paying the money. Professors get paid whether you go to class or not, so it's your money you're losing.

[I wish I had known the] amount of responsibility involved in getting work done, turning [it] in on time, etc.

[College] is a totally different lifestyle, atmosphere (tests, professors, etc.). [It is] more responsibility.

[I wish I had] taken school more seriously.

It is a more laid back atmosphere [in college]. More is left up to you.

### **Time Management and Organization**

[I wish I had know] how much time you really need to spend studying.

Time management is very important.

[I wish I] had known time management.

[I wish I had known that you] need to allocate your time for studying.

[I] needed to [have] put a lot more time into studying.

[I wish I had known about] time scheduling.

You have to learn how to manage your time and money.

[I wish I had known about] getting your work done early; earlier the better.

Be sure to get textbooks in advance. Set priorities so [it] won't be as stressful.

There is more studying involved (independent) than I thought.

[I wish I had known] that it would take up so much of my time to keep up the high GPA [grade point average] that I [had] made [the] first semester.

You have a lot of time, but [you] find [that] it goes away quickly. Learn how to manage your time.

It's hectic.

There will be plenty of time for social life. Do not try to squeeze it all in at first.

[I wish I had known] to be much more organized [and had a] better understanding

of what I can and can not do.

[I wish I had known] how important it is to be organized.

[I wish I had known] how to manage my time.

### **Extracurricular Activities**

[I wish I had] been more involved in student organizations during [the] first semester.

[You] need to get involved with an organization. [It] doesn't matter which [one], but [you] need to make friends and get involved.

Getting involved in extracurricular activities is important. When [you are] asked to join academic groups, you should, even if it costs [money]. [You] will need it on your resume.

### **Support Services**

I would have gone to a college that had a disabled student services. I went to a private college, but should have gone to a state college because they would have offered more.

[I] didn't utilize all the disabled student services programs and services available to me.

[I wish I had known about] resources that are available to me from disabled student services.

[I wish I had known to] check out disabled student services to see if they have programs to help you.

[I wish I had known about] some of the services that were offered by vocational rehabilitation.

[I wish I had known] there is vocational rehabilitation.

Find out about internal supports of university (disabled student services, social clubs, etc.). Use resources (library, people as resources, etc.).

Disabled student services is not helpful in many ways. They need twice as much

money. Affirmative action is a joke. You need to get resources from outside the college system.

[I wish I had known that there were] lots of people on campus to help you (counselor programs, etc.).

[I wish I had known about] the services that are available. [They] make things a lot easier.

[I wish I had known about the] different services that are provided to the students that I didn't know about.

They provide a lot of services that I wish I had known about as a freshman.

[I wish I had known] that there are support groups for disabled students. [Support groups are] helpful to talk to. [You] realize [that] you're not the only one.

### **Knowledge of the "System"**

Learn the "system", how it works.

[I wish I had known] how to deal with bureaucracy.

[I wish I had known about] all the "ins and outs" of the system, [the] silliness involved (how professors and staff used their pet projects to further career), [and the] *politics*.

Knowing which instructors are better to take over others [would have been important to know].

[I wish I had known] all the politics of it [college]; what you have to go through to get what [you] need.

There's a lot of paperwork.

[I wish I had known] how unhelpful the college was. Wish [I had] listened to friends when they said that the college administration didn't care.

## **Academic Advice and Scheduling**

I wish I'd a student advisor to tell me what was offered and expected of students.

[I wish I had known] how many credits the second university needed before I transferred. Maybe I needed an academic counselor.

I could have been advised better. [I wish someone had] talked [with me] about classes.

[I wish I had known about] registration procedures.

[I wish I had known] that everything is not set in concrete (like drop dates, etc.).

[I wish I had known that] you can drop a course during drop period.

[I wish I had known] more about how registration took place, paperwork, financial aid, schedules, etc.

[I wish I had known] the difficulty of getting into core classes which become necessary later on. [I wish I had known] how hard it is to get into them because [they] are filled.

[I wish I had known to] reduce my load. [I took] too many hours.

[I wish I had known about the] CLEP program.

## **Selecting a College or Major Area of Study**

[I wish I had] known long-term goals [for myself] and what majors are suited for and which colleges are best for that [major area of study].

I wish I hadn't picked the first college I went to because it did not offer much.

[I wish I had known] how to have found out more information about different colleges.

Explore the fields on your own to see which area you want to pursue.

[It] is best, if possible, to decide on a major [area of study] and stay with it.



### **Financial Assistance and Cost**

[I wish I had known about] grants and scholarships. There should be a catalog issued to freshman [with information about grants and scholarships]. [You] should know about [the] grants register.

[I wish I had known] how to get a Pell grant, and ways to get around it.

[I wish I had known] how private scholarships work [and] vocational rehabilitation.

Financial aid is so important.

[I wish I had known about] the money!

[I wish I had known about the] cost involved.

### **Transportation and O&M**

[I wish I had known] more about mobility instruction. I wish that more of the equipment that is available today was available then.

Mobility: wish I'd had better O&M.

I wish I had known that transportation was offered.

[It] takes quite a while to become familiar with organizations and campus layout.

[Do] not let people pet your [guide] dog.

[I wish I had known that my] dog gets bored during lectures. He'll moan.

### **Social Interactions**

[It is] really easy to meet people.

[You] will make life-time friends, believe it or not!

[Do] not be afraid to make friends.

When I went from high school to college, [I] was worried about getting lost in the crowd. [That] really isn't that much of a problem; everyone is going through [the]

same thing [that] you are (scared, shy, etc.).

[I wish I had known] how important it is that you be able to gain a good rapport with whoever you're dealing with.

Get to know people within the first few weeks. Be active.

If [I] had known [that] teachers would work with me and would meet friends, [I] wouldn't have worried so much.

[I wish I had known] that most people are willing to help you. [I] should have gotten to know them sooner.

You don't need to study as much in the beginning. [It is] more important to make friends first. Study second semester.

[I wish I] had known [that I] would have as much trouble relating to sighted students as I did.

[I wish I had known that you were] more on your own in college than [in] high school.

[I wish I had known] that you're pretty much on your own [in college].

### **Test-Taking and Other Skills**

[I wish I] had known better how to take multiple choice [tests]. Read [the] question first. Try and think of answering on your own.

[I wish I had known] to not worry about everything so much. Don't get so stressed out.

Hang in there and [do] not drop out just because something doesn't work out. Keep trying.

[I] was stressed out. Wish [I] had been more relaxed [and] not so nervous.

[I wish I had known about] certain skills that you need before [you] start, like better grammar and writing skills.

[I wish I had] typing skills.

Not to get so stressed out about tests.

Take advantage of alternate test arrangements.

### **General Information**

It [college] needs commitment. It [college] broadens peoples' horizons [and] opens your mind.

[I wish I had known about the] transformation between high school and college. [College] is so different!

If I'd understood it [college] better, [I] would have taken [it] more seriously. [It] is a big commitment.

[College is the] best ten years of your life. [It] is important to be serious.

Really not as scary as you think it [college] is.

[I] hadn't realized how much fun [college] was going to be. [I] was so nervous at first. [It] is a lot of fun to get involved with if [you] relax.

It [college] goes fast, so enjoy it and make the most of it.

Internships are very helpful. Get involved, get a job, whatever. Don't screw around.

[I wish I had known that] nothing's really changed.

I wish I had known I had a visual disability. I wish there had been some type of visual testing, like reading comprehension.

Take canned food if you live in the dorm.

There is not as much busy-work as in high school.

## **APPENDIX E**

**What Advice Would You Give a  
High School Student with  
a Visual Impairment Who Wanted  
to Go to College?**

## **What Advice Would You Give a High School Student with a Visual Impairment Who Wanted to Go to College?**

### **High School Preparation**

Take advanced placement courses in high school! [It] helps prepare [you for college]. [You] can take a test to get college credit.

Make the best grades that you can. Take as many advanced courses as you can, especially math because that is what is the hardest in college.

Get the most out of high school that you can! Learn all you can, do all you can, because college builds on high school. If [you] don't learn it in high school, [you] will start college with an added deficit.

Make sure to get enough skills so it doesn't shock you when you get to college.

Evaluate everything carefully. Every aspect of college is different than high school.

You should know whether or not you are a good student or not. If you are only a fair student, you should make sure that you will be able to do well.

They need to be able to determine what long-term goal is and what skills are, before going to college.

If you are offered [the chance] to go to a college preparatory program, go. It is very beneficial.

Get ready.

### **College Options and Choices**

Start as early as possible (looking at schools and their disabled student services). Keep in back of mind that [you] are paying for it [education] now.

Prepare early.

If you have a visual impairment, make sure your college has help for you.

Visit college first to see what they offer and how they'll help.



Make sure to research different campuses thoroughly, including topography. Definitely check about services offered for visually impaired [people]. [This is] very crucial as far as success.

Consider the school's availability to help you.

Find a college that's willing to accommodate the visual impairment, but don't make that the control issue.

Check into the college itself and what type of opportunities they offer. Do they have a special office, CCTVs, etc.?

Talk to disabled student services before going in. Find out what services [are] available. Don't let [the] size of [the] university scare you off.

If you know where you are going to school, go talk to, make appointment with disabled student services. See what is available, [see] what they offer. Make college network for them.

Take the time to check out the college and it's disabled student services. Check out it's track record (how many visually impaired [people are] on staff, if they [services] are free, [and] how they [services] are available). Get an orientation.

When you look into colleges, see what they offer [to] visually impaired students.

Need to find a college with a good disabled student services office, not one that will do everything for you, but one to help you help yourself, especially with O&M.

Talk to a vocational rehabilitation counselor to find schools that offer what you need.

Find out what services are offered by the colleges you are interested in.

Generally, large universities have better facilities for students with disabilities.

A smaller school is better than a larger one.

If you have a good community college nearby, go! It makes a great transition.

Pick a college close to home, if possible. [It is] easier.

[It is] important where the college is.

Choose a college that is in a town with some kind of public transportation.

Orient yourself to the school before you go. Be skeptical in what college you choose.

Check out the campus first to see if [you] are comfortable getting around it.

Plan ahead as much as possible. Go look at [the] college in advance. Visit and see what services are offered. See if you can get around.

Find out about what the campus or surrounding area has to offer for transportation.

Consider what you are going to need from the school like mobility, etc. Find out about transportation in the area.

[I would advise students to determine] how good transportation is in the city where the college is.

Familiarize yourself with campus.

Check out different kinds of colleges.

Check out college before [you] enter.

Look into school.

Choose the college carefully.

Visit the campus, see what's offered, and talk to the students there! See what it's like.

[Students] would need to visit different colleges and, if possible, spend time there to see if it offers all you need and want.

Check the college out.

Gather as much information as possible in advance.

See what schools have [the] best facilities.

### **Transportation and O&M**

Have incredibly good mobility skills because you will need to do things on your own.

Develop strong mobility skills.

Have to have very good mobility skills.

Stick close to your O&M instructor.

Transportation is very important. Look for a college close to town so you can walk and not have to depend on rides.

Mobility is very important. Learn how to get around on your own.

Before school starts, familiarize yourself with [the] layout of campus so [you] won't have [the] added stress of worrying about that when school starts.

### **Financial Assistance**

Get your hands on all [the] money you can from [the] college, commission for the blind, [and] vocational rehabilitation.

Tap into different resources as possible (monetary, etc.).

Apply for many scholarships.

Check on financial aid. Find out if there were special programs or more money.

### **Contact or Talk to Disabled Student Services**

Contact your counselor.

Talk to disabled student services.

Contact disabled student services. [They] can be a great help.

Check out support services at the school to see what they will offer you.

Seek out help early. Seek out counselors. They are there, but don't get frustrated.

See what disabled student services offers.

Get in touch with disabled student services.

Make sure [the college] provides things for visually impaired students. Make sure [the college] offers alternate test arrangements.

Check with disabled student services.

Get in contact with school's disabled student services first thing.

Keep in touch with disabled student services. Let them know who you are and what your needs are.

Check out disabled student services to see if they have programs to help you.

Know [what] services [are] available, [such as], rehabilitation and disabled student services.

Get to know your way around the college. Take advantage of the services that they offer.

Use all services [that] they can.

Check into all the visual impairment aids you can get.

Find out which services the college offers or if they are willing to get [needed] services.

[There] are things available for help. Get in touch with your disabled student services or your department to see what's available.

### **Contact or Talk to Vocational Rehabilitation and Other Disability Agencies**

Get in touch with vocational rehabilitation. Find out what resources are available for visually impaired [people].

Go to vocational rehabilitation.

[I would advise students] to check with their local or state representatives of [the] commission for the blind to see if [they] can help.

Try to have resources other than vocational rehabilitation.

Take advantage of everything college and vocational rehabilitation has to offer.

## **Decide Major Area of Study**

Decide on a major [area of study] as soon as possible.

Definitely know what [you are] majoring in so [you] don't have to keep transferring credits and wasting time and money.

Try to choose a major [area of study] that they're capable of functioning well in.

You do not have to choose a major [area of study] right away. You can work on the basics first.

Even if you don't know exactly what your major [area of study] is going to be, you should still go [to college].

Look at different majors and try to talk to people in them to help [you] decide.

## **Contact or Talk to Peers**

Talk to other blind students at the college.

Talk to a blind student at the college you're looking at to get advice.

Find a student with [a] visual impairment before you enter [college] and see if they had problems getting services that you'll need, to see if college is OK.

Contact organizations. Talk to them to see what it is like. Get their help.

Talk to professionals and people who have been through it [transition to college]. See what they say.

Talk to people who are already there.

Try to talk to people on campus who have done it. [It] isn't impossible, but find out what you are facing.

## **Contact or Talk to Teachers**

Always introduce yourself to instructors.

Don't be afraid to approach professors. They are willing to help.



Talk to professors to make special arrangements. Most [professors] are very helpful.

Learn to plan ahead. Find out as soon as [you] can what classes you're going to take, so [you] can get books and talk to professors.

Make many friends: faculty and students. Knowing people reduces problems.

Get to know your professors.

Get to know your teachers.

Work with teachers. Make them aware [of your visual impairment] right away.

Establish rapport with professors and let them know what you are capable of.

Get to know administrators and campus workers. [It] helps [you to] get to know one person when [you] need something.

Visit the department [in which] you're interested and see how the professors actually deal with you; their teaching methods, like do they put everything on [the] board.

Remember that you can talk to your professors.

Check out your instructors to make sure they're cooperative, for example, allowing tape recorders [in class].

Don't be afraid to ask teacher to repeat himself or herself. Always sit up front.

Don't be shy speaking to instructors to make needed arrangements (like boardwork, etc.).

Don't be afraid to ask for help from your professors. A lot of them just don't know.

Make sure to inform teachers as to what your needs are.

Talk to professors. Tell them precisely what you need because you know better than anyone else what you need, so you have to tell them. Most people don't know anything about visual impairments, so [you] just need to tell them, so they can help you.

Speak with instructors [to] let them know what accommodations are needed. Let them know you want to be treated on [an] equal basis.

If you have a problem, go to professors ahead of time. Let them know [about the problem].

Inform the instructors.

There will be teachers who don't want you in their class. Drop them and take it another time under another teacher. There will be mean teachers, but stick it out because there are lots of nice ones, too.

## **Alternative Media**

Know braille.

[It is] very important to learn braille at [an] early age. [It] helps out in a lot of ways, like when you have to give a speech.

Need to use tapes or braille if [you have] low vision in addition to adaptive equipment, such as "ancient television."

[You] should get braille, especially in foreign language and math.

It is hard to get foreign language major materials in braille.

[There is] limited use of braille; [therefore,] don't rely on it. [It is] too slow. [Braille is] not feasible for college settings today, but [you] still should learn it.

[The] braille association in [location deleted] is very helpful.

Don't be afraid to use "blind" techniques like readers or braille. [It] is your responsibility to line all this up. Hire your own readers so you can get what you want.

Get recordings of books far in advance, as much as possible.

Hire your own readers. [This is a] good way to learn to deal with and manage people.

Don't be embarrassed to use instruments [in class] like [a] tape recorder. [You] will have lots of reading to do.

Tell your readers that they have a job to do, and it is a big responsibility. It is very hard to find readers.

During [the] summer, between high school and college, if [you] have to switch, say, from braille to books, [you] should practice with tapes before college because retaining the information from tapes is hard.

Bring a second person or tape record[er] when [you are] going to a meeting about the school, etc.

Know what it takes to be successful in [the] classroom, [for example,] adaptive devices.

Check out your dorm room to find out where you'll put everything. Lots of people have lots of visually impaired equipment. [You] kind of need [a] private room.

Find other means to use if [you] can't get [the] one you usually use, like large print.

Order your books early.

### **Computers and Technology**

Try to get a computer.

Learn to use a computer.

Learn all of the computer stuff that you can, especially for visually impaired [people].

If you can get a computer, you will need it.

Know computers; should learn in high school, as freshman.

Look into all of the visual aids. See what is out there so you can find the best to help you get through college. Do it before college.

Take advantage of different visual aides that exist.

Keep up with changing technology.

Try to get a computer.

## **Assertiveness, Advocacy, and Independence**

Learn to be independent [and] self-sufficient.

Learn to be independent from everyone else.

Try and be independent, even in high school because [it] can be a huge shock when [you] get to college, especially if [you] are going far away.

Depend on as few people as possible.

Be as independent as possible.

Figure out how to do things [for] yourself. There is always a way to do things.

Learn how to control your own life.

Needs to know [that] he/she [is] in charge of doing things for yourself, like getting textbooks, etc.

Have to take care of things yourself. [There] isn't someone there all the time.

You need to have the skills to be able to say if you need something and ask the teachers for it, otherwise, it won't get done.

Learn how to openly convey what your needs as a blind student are (and aren't) so people can appropriately help you.

Talk to someone about getting what you need. Make sure you get it (for example, testing methods, recorded textbooks). Make sure [that the] college will offer it.

Don't hesitate to ask for help. You have [the] right to ask for what you really need.

Don't worry about what people think or ask. Just do what you need to do. People will ask questions.

[I would advise students] to be more assertive. Advocate [for] yourself. Make sure you get what you need.

Don't be shy. If you have a problem, speak out about it, then they are willing to help.

Get all the services [that] you can. They're usually there, so take them.

Take the initiative in everything you do.

There are people to help you. [You] just need to go find them.

Don't let anything stand in your way. If disabled student services is bad, go to their boss, then their boss. File a complaint! Don't stop! You are going to get discouraged.

Don't let disabled student services or vocational rehabilitation tell you what you can or can't do or [let them] limit you. You tell them what you want or need. Take [the] initiative! Empower yourself. Advocate yourself. Who knows better what you want or need than you?

Be aggressive enough. Have self-confidence. Blindness can't stop you. Push yourself. [High school students need to know] how good your conditions are. [You] have all kinds of things available to you (equipment, aides, etc.).

Find out everything that is available to you and ask for what you need. Don't waste time by being inefficient. Don't be vain.

Learn your rights and laws, like 504, etc.

Learn self-discipline.

Be totally prepared and independent with your visual impairment. Learn to travel, read and write, etc., before you take on college.

Try to work out a lot of the problems (like reading problems, etc.) on your own before seeking help, but still know they're there.

Do not be shy. Speak up. Do not give up.

Ask for what you need. Nobody can do it for me.

The best things that you can do to prepare [for college] are those that develop self-confidence and independence. Be prepared to really look out for yourself.

Don't be negative in your attitude when you request things.

### **Course Load**

Take only nine hours [during the] first semester if you can.



Take it slowly. Don't take too many courses at once.

### **Study Habits and Time Management**

Develop good study skills.

Develop good study habits before [you] ever get to college!

[You] might have to work a little harder.

A lot of work [is required]. There is a lot of time required.

Get tutoring.

Study hard.

Keep grades up.

Leave enough time to do outside work.

Try to have everything on time just like everyone else.

[It] is really important to study.

### **Extracurricular Activities and Social Networks**

[It] would be important to have a good support group (friends, disabled student services, etc.). Be involved so you will feel integrated.

Don't isolate yourself because you will have to function in an integrated college atmosphere.

If you keep a good attitude and don't mind answering questions about your blindness, [you] will have a better time; people will be more willing to help you and be your friends. Have a good disposition. Be happy. [It] will pay off.

[It] is different when [you] are living with students who can see, rather than just going to school with them (like high school). Sighted students are afraid [they] will have to "take care of you." [You] might hinder their fun time, so [they] may be scared and seem unfriendly at first.

Be sure to be comfortable with yourself and your blindness. [It] is easier to make friends.

Don't worry about the social aspect of college. Don't be afraid to ask for help. The worst thing you can do is not mix, mingle, [or] speak out with other people. Don't keep to yourself.

Try to meet as many people you can. Make contacts.

Make friends.

Make friends early.

Get to know people within the first few weeks. Be active.

Get involved in extracurricular activities.

But don't just be social; you might flunk out your first semester. Balance academic and social [activities].

### **Disability-Related Comments**

Consider all of your needs, not just [your] disability-related ones.

Just because [you] have [a] visual impairment, doesn't mean [you] can't be [an] active, well-educated person.

Don't let your visual impairment keep you from doing what you want to [do].

Try to do as much as [you] can and don't let your blindness limit you. Just be yourself.

Just because you are visually impaired, doesn't mean [you] can't go to college.

[I would advise students] not to be afraid or feel that because [they] have [a] visual impairment, [they] are a second class citizen. [You] should be ready to take on a challenge and not worry so much about how other people feel about you because that attitude is always going to be there.

Adopt the attitude that you can do anything that you want to do. Barriers that you run into should be considered as challenges. [It is] your responsibility to make it easier for the next visually impaired [person] that comes along.

Don't make your disability a disability.

Don't take handouts. You are just as capable as your sighted peers. Of course [you] will have to adapt, but don't ride on your disability.

Visually impaired students shouldn't get special privileges.

Do not compare yourself to other students.

Encourage them to be sure [they] are prepared for [the] work load and [have the] needed techniques.

Be prepared to put in about twice as much time and work as sighted students.

[Do] not be afraid to know [that] you have [a] visual impairment, so people can help you.

[The] high school guidance counselor will hold you back. [He/she] will tell you [that] you can't go to college because you are visually impaired. But go anyway.

Realize that it is not you, but your vision. If you make bad grades, it is not because you are stupid, but because of [your] vision.

[You] should distribute the results from this study to all high school students, because some don't realize [they] are visually impaired or [they] are in denial.

### **Motivational Comments**

Try to go [to college]. You can make it.

[I would advise students] to go with an open mind. Do not be scared to do what you want to [do]; then worry about accommodations. [There are] always ways to get around obstacles.

Don't be discouraged by any professionals.

Go for it.

Go for it, but know your resources.

[High school students should] pursue their dreams no matter what anyone says. [They should] follow [their] hearts through determination.

It is not easy. You have to hang in there, but if you really want to do it, then buckle down and do it.

[There is] nothing you cannot accomplish at school. You may have to work a little harder, but you can do it.

Whatever it is that you want, nothing and no one should stop you. Put everything you have into it.

Enjoy yourself!

If you can get through the first year, you've got it made.

Give it [college] a shot.

Do your best.

Don't worry about what others think. Be proud of yourself.

Go ahead and go for it. Don't be scared. [There are] lots of people out there to help you.

Go for it.

Do your best.

Try and do well grade-wise, so [there] is no question that the grade wasn't just given to you.

Go for it. Don't let anything stand in your way.

Nothing is impossible.

[I would advise students] not to be discouraged and don't think [that you] can't do as well as others. [There] are lots of ways to get around things.

Go for it.

Don't let anyone try and discourage you and make you think you can't do the work.

Be determined.

Build your own self-esteem up. Be confident.

Some teachers will just not accept you, but that's OK. Just accept it because there's also many great teachers that care a lot.

Relax a little bit. Don't be so stressed out about everything. Enjoy yourself because it's a big change.

If you want to go to college, by all means, go!

Don't be discouraged.

Be involved in and out of [the] classroom.

Know your limits.

Definitely believe you can.

Make yourself do it. Have self-discipline. Don't let that scare you away.

Do not be discouraged. Go ahead and fulfill your goals. Be determined.

[It] comes with time.

There is no reason why you cannot go to college. It is just a matter of applying yourself.

Be open-minded.

Love yourself.

### **General Comments**

Do not skip class.

It [college] is going to be a lot of hard work. Be ready to accept responsibility for yourself.

Work hard. American people don't work hard enough. Put in 40 hours.

Always ask questions.

If you are really not ready to go [to college], then take a year off.

Go to college. Make sure it has the degree you need. Try not to transfer.



Wait at least two years before going from high school to college. A little time in between gives [you a] better perspective [and] maturity.

Make sure [that you] know that's really what you want to do.

Be active.

Be careful. They're not helpful. Even if they seem like they're helpful, they're really not.

Don't bring so much stuff with you.

Don't always take things too seriously.



BEST COPY AVAILABLE